



DRAFT

**CITY OF LAKE CITY
WELLHEAD PROTECTION PLAN
PART 2 AMENDMENT**

February 27, 2020

Stantec Project No. 193803357



TABLE OF CONTENTS

PUBLIC WATER SUPPLY PROFILE.....	iii
DOCUMENTATION LIST.....	iv
WATER SUPPLY WELL INFORMATION	iv
PART 2 EXECUTIVE SUMMARY	vi
1.0 INTRODUCTION	1
2.0 WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA.....	2
3.0 VULNERABILITY ASSESSMENT	3
4.0 DATA ELEMENTS.....	4
4.1 Precipitation	4
4.2 Geology.....	4
4.3 Soil Conditions.....	5
4.4 Water Resources.....	6
4.5 Groundwater Quality	6
4.6 Groundwater Quantity	7
4.7 Surface-Water Quality	7
4.8 Surface-Water Quantity	7
5.0 CONTAMINANT SOURCE INVENTORY.....	8
5.1 Land Use	8
5.2 Shallow Disposal Wells.....	8
5.3 Wells.....	9
5.4 Point Sources.....	10
5.5 Non-Point Potential Contaminant Sources	10
5.6 Public Utility Services.....	11
5.7 Active Sites of Contamination.....	11
5.8 Summary.....	12
6.0 PROJECTED CHANGES TO THE ENVIRONMENT, LAND USE, SURFACE AND GROUNDWATER.....	13
6.1 Changes to Environment and Land Use	13
7.2 Changes to Surface and Groundwater	13

7.0 PROBLEMS AND OPPORTUNITIES	14
7.1 Problems	14
7.2 Opportunities.....	14
7.3 Status of Existing Governmental Controls Concerning Water and Related Land Use.....	15
8.0 WELLHEAD PROTECTION GOALS, OBJECTIVES AND IMPLEMENTATION PLAN	17
8.1 Goals.....	17
8.2 Objectivess.....	17
8.3 Implementation Plan.....	18
9.0 GUIDANCE FOR CITY OF LAKE CITY STAFF, WELLHEAD PROTECTION PLANNING	29
10.0 PROGRAM EVALUATION.....	31
11.0 EMERGENCY PREPAREDNESS AND CONTINGENCY PLAN	32
12.0 PUBLIC PARTICIPATION AND PLAN REVIEW.....	33

FIGURES

Figure 1:	WHPA and DWSMA Delineation
Figure 2:	GWCA Vulnerability
Figure 3:	Soils
Figure 4:	Water Resources
Figure 5:	Land Cover Map
Figure 6:	Wells Within Groundwater DWSMA
Figure 7:	Tanks
Figure 8:	Spills
Figure 9:	Other Potential Contamination Sources
Figure 10:	Storm Sewers, Sanitary Sewers, and SSTS

APPENDICES

Appendix A:	Potential Contamination Source Inventory Data
Appendix B:	City of Lake City Consumer Confidence Report
Appendix C:	Land Zoning Maps
Appendix D:	Inner Wellhead Management Zone Surveys
Appendix E:	Notice of Approval of Water Supply Plan
Appendix F:	Correspondence
Appendix G:	Documentation of Public Hearing
Appendix I:	Part 1 Wellhead Protection Plan

PUBLIC WATER SUPPLY

NAME: City of Lake City

ADDRESS: 205 West Center Street, Lake City, MN 55041

TELEPHONE NUMBER: 651-345-3208

FAX No.: 651-345-3208

WELLHEAD PROTECTION MANAGER

NAME: Scott Jensen

ADDRESS: 205 West Center Street, Lake City, MN 55041

TELEPHONE NUMBER: (651) 345-5383

E-MAIL: sjensen@ci.lake-city.mn.us

FAX No.: (651) 345-3208

CONSULTANT/TECHNICAL ASSISTANCE

NAME: Mark Janovec, Stantec Consulting Services Inc.

ADDRESS: 733 Marquette Avenue, Suite 1000, Minneapolis, MN 55402

TELEPHONE NUMBER: (612) 712-2000

E-MAIL: mark.janovec@stantec.com

Water Supply Well Information, Lake City, Minnesota

Local Name	Unique Number	UTM Easting	UTM Northing	Aquifer	Casing Depth (ft)	Well Depth (ft)	Date Constructed	Vulnerability Status
1	226873	556,978	4,921,929	QWTA	121	146	1949	Vulnerable
2	226872	558750	4,921,018	QWTA	133	163	1953	Vulnerable
3A	241415	558,414	4,922,288	QWTA	100	130	1974	Vulnerable
4	191592	560,014	4,919,605	QWTA	113	143	1982	Vulnerable

PART 2 EXECUTIVE SUMMARY

The City of Lake City completed their original Wellhead Protection Plan in 2008. This document is an amendment to that plan, covering changes in well use, land use, and potential contamination sources in the Lake City area since the original plan was developed. This amendment is designed to cover the next ten-year period.

This portion of the amended wellhead protection (WHP) plan for City of Lake City includes:

- The results of the Potential Contaminant Source Inventory,
- The Potential Contaminant Source Management Strategy,
- Reference to the existing Emergency/Alternative Water Supply Contingency Plan, and
- The Wellhead Protection Program Evaluation Plan.

The amended *Part 1* of the wellhead protection plan presented the 1) delineation of the wellhead protection areas (WHPA) and the drinking water supply management areas (DWSMA) and 2) the vulnerability assessments for the system's wells and the aquifer within the DWSMA. The amended Part 1 of the WHP plan was submitted to the Minnesota Department of Health (MDH) and approved on January 17, 2019. The boundaries of the WHPA/DWSMA are shown in Figure 1.

The *vulnerability assessment* for the aquifers within the DWSMA was performed using available information and indicates that the vulnerability of the aquifer used by the system ranges from low to high as seen in Figure 2. However, since surface waters across the DWSMA have the potential to infiltrate in the highly vulnerable areas for the aquifer, the entire DWSMA is considered to be highly vulnerable. Therefore all land uses and potential contaminant sources must be inventoried and mapped and management strategies must be developed for all potential sources of contamination.

This information was presented to the WHP Team during the Second Scoping meeting held with the MDH on March 14, 2019, when the necessary requirements for the content of Part 2 were outlined and discussed in detail.

Sections 4-7 of this part of the WHP Plan (hereafter referred to as Plan) provide data and analysis in support the approaches taken to address potential contamination sources. Section 8 of this report describes the approaches taken in terms of goals, objectives, and actions to be taken.

In Section 4, the required *data elements* indicated by MDH in the Scoping 2 Decision Notice are addressed. Pertinent data elements include information about hydrology, geology, water quality, and water quantity

A *potential contaminant source inventory* and general *land use* information is given in Section 5. The potential contaminant source and land use inventory reflects the vulnerability of the aquifer in each land parcel and what is known about the data elements in Section 4.

Section 6 addresses the possible impacts that *changes in the physical environment, land use, and water resources* may have on the public water supply. Continued land development and moderate increases in groundwater use within the DWSMA are anticipated within the next ten-year period.

The *problems and opportunities* concerning land use issues relating to the aquifer, well water, and the DWSMA are addressed in Section 7. The major concerns addressed in the plan are 1) other wells

located within the DWSMA that could become pathways for contamination to enter the aquifer; 2) non-point potential sources of contamination which could impact surface waters infiltrating into the aquifer(s) and 3) the potential point sources of contamination identified in Section 5 of this plan.

The drinking water protection *goals* that the public water supplier (PWS) would like to achieve with this plan are listed in Section 8. In essence, the PWS would like to:

- maintain the current drinking water quality
- increase public awareness of groundwater protection issues
- protect the aquifer
- continue to collect data on water quality

The *objectives and action plans* for managing potential sources of contamination are also contained in Section 8. Actions aimed toward educating the general public about groundwater and land use issues, gathering information about other wells and potential contaminant sources, using the collected data in water supply and land use planning, and collecting data relevant to wellhead protection planning are the general focus.

Section 9 contains *guidance* for use for City of Lake City staff.

Section 10 contains a *measure to evaluate the implementation* of the management strategies of Section 8. The wellhead protection program for City of Lake City will be evaluated every two years.

Section 11 references the *Water Supply Plan* approved by the Minnesota Department of Natural Resources. This approved plan addresses contingencies which may occur to the City's drinking water supply system.

Finally, Section 12 discusses the *review process* and addresses any comments brought by local units of government and the public.

1.0 INTRODUCTION

Wellhead protection is a means of safeguarding public water supply wells by preventing contaminants from entering the area that contributes water to the well or well field over a period of time. This program is now required in Minnesota since the Minnesota Department of Health (MDH) implemented its Wellhead Protection Rules in November 1997. The MDH initiated its Wellhead Protection Program in response to the 1986 Amendments to the Safe Drinking Water Act and MDH's statutory authority is granted in the Minnesota Groundwater Protection Act of 1989. The City of Lake City completed its first Wellhead Protection Plan in 2008. Water suppliers are required to update their plans every ten years or when significant changes occur to the water supply system. This document represents the amended Wellhead Protection Plan for the City of Lake City and is expected to cover the next ten-year period.

The City of Lake City obtains its drinking water supply from four wells completed in an unconfined sand and gravel aquifer. All the wells are within the city limits. Detailed descriptions of the geologic and hydrogeologic setting of the water supply system, the delineation of the Wellhead Protection Area and Drinking Water Supply Area, and the well and aquifer vulnerability assessments are presented in the amended *Part 1 Wellhead Protection Plan* (Stantec, 2018) which was approved by MDH on January 17, 2019. See Appendix I for a copy of the approved plan. The rest of this report summarizes the information presented in the Part 1 report, presents additional data elements, and presents the contents of the wellhead protection plan.

2.0 WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA

The wellhead protection area (WHPA) and drinking water supply management area (DWSMA) delineation analyses were conducted in accordance with Minnesota wellhead protection rules administered by the Minnesota Department of Health. The following criteria were considered in making the delineation analysis: 1) the aquifer's transmissivity, 2) the groundwater flow directions, 3) the maximum average daily pumping rate from each of the existing wells, 4) hydrogeologic boundaries, and 5) time of travel. Each of these criteria were factored into the development of a groundwater flow model that was used to conduct the delineation analysis. The results of this analysis (i.e., the WHPA and DWSMA) are presented in Figure 1. Additional details on the delineation analysis are presented in the amended *Part 1 Wellhead Protection Plan* prepared by Stantec (Appendix I). The delineation was approved by the MDH on January 17, 2019.

3.0 VULNERABILITY ASSESSMENT

Two separate vulnerability assessments were undertaken to as part of the Part 1 Plan. The first assessment consisted of an assessment of the vulnerability to contamination of the aquifer within the identified DWSMA. This assessment was completed according to MDH guidelines and recommended methodology. The second assessment was a well vulnerability assessment for each of the four City of Lake City wells. The well vulnerability assessment was also completed using MDH guidelines. A description of the two assessments is presented in the amended *Part 1 Wellhead Protection Plan* prepared by Stantec (Appendix I).

The groundwater capture zones for the City's wells range from low to high in vulnerability as shown in Figure 2. However, there is a larger area of surface water which drains towards the highly vulnerable portion of the groundwater capture zones. The WHPA (wellhead protection area) shown in Figure 1 includes this surface water component as part of the delineation. Since this area has the potential to carry contaminants to the highly vulnerable capture zones, the entire DWSMA was classified as highly vulnerable. The results drove the need for a detailed evaluation of potential contaminant sources, which is presented later in this report.

All four Lake City wells are considered vulnerable to contamination, due to the lack of protective geologic layers above the aquifer at each well location.

4.0 DATA ELEMENTS

The state rules relating to wellhead protection require that wellhead protection plans include specific data elements. The required physical environment, water quantity and water quality data elements were addressed in Part 1 of the Plan (See Appendix I). Part 2 of Chapter 1 of the Plan also includes an assessment of the impact of these data elements on 1) the use of the wells, 2) the wellhead protection area delineation criteria and 3) the quality and quantity of water supplying the public water supply wells. Each of these elements was discussed specifically in the second scoping meeting with MDH and are presented briefly here.

4.1 Precipitation

Monthly and annual precipitation in Lake City, Minnesota is provided in the table below. Precipitation amounts were calculated using the Minnesota Climatology Working Group's gridded database. This method calculates a precipitation amount for a given location by locating the nearest monitoring stations and filling in any gaps in the precipitation data by using data from other nearby stations.

Average annual precipitation over the past decade is 35.70 inches. Normal precipitation for the Lake City area from 1981-2010 was 32.58 inches in comparison. The groundwater flow model developed to delineate the wellhead protection areas addresses the rate at which recharge occurs within the aquifer.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2018	1.22	1.07	1.07	3.31	3.38	8.00	3.27	4.62	7.27	4.19	1.75	2.24	41.39
2017	2.31	1.79	1.70	3.99	5.20	3.93	6.22	5.97	1.84	3.61	0.64	0.59	37.79
2016	0.55	0.47	3.46	2.43	3.13	5.95	4.04	8.61	8.04	2.30	1.49	2.39	42.86
2015	0.41	0.36	0.86	3.07	4.34	5.63	3.56	4.68	3.74	1.87	3.26	3.64	35.42
2014	1.07	1.84	0.61	5.16	3.74	7.70	1.68	4.71	2.15	1.90	1.05	0.78	32.39
2013	0.62	1.22	2.25	4.30	6.53	3.34	1.86	1.67	2.58	2.83	1.36	1.09	29.65
2012	0.75	1.92	1.87	2.49	6.59	8.16	3.17	2.43	1.36	2.31	0.53	1.79	33.37
2011	1.03	1.60	2.45	3.24	3.13	7.46	6.83	1.90	0.94	0.43	0.52	1.05	30.58
2010	0.58	0.70	0.47	1.62	2.27	7.44	6.82	5.22	11.48	1.37	2.84	2.67	43.48
2009	0.91	1.19	1.05	2.51	2.78	4.65	1.70	5.00	1.17	6.53	0.39	2.14	30.02
Avg	0.95	1.22	1.58	3.21	4.11	6.23	3.92	4.48	4.06	2.73	1.38	1.84	35.70

Since there appears to be some connection between the aquifer and the surface and because a large part of the DWSMA represents surface water runoff towards the well field, there exists a potential that precipitation could impact the water quality through runoff and infiltration. Therefore, the potential impact of precipitation infiltration on water quantity and quality was addressed in the development of this Plan.

4.2 Geology

A description of geologic conditions in the wellhead protection area is provided in the Part 1 Wellhead

Protection Plan. (See Appendix I.) This report also includes bedrock geology and surficial geology maps and representative geologic cross sections. The available geologic information suggests that the DWSMA is vulnerable to contamination, and geology was the primary factor used in the vulnerability assessment. The vulnerability assessment, in turn, determines the types of potential contaminant sources for which management strategies must be developed.

4.3 Soil Conditions

Because there is not a consistent protective layer of low permeability sediments throughout the DWSMA, local soil conditions and soil infiltration characteristics may impact groundwater quality. Soil survey data for Wabasha County are maintained by the Natural Resource Conservation Service of the USDA as a SSURGO version 2 database. This includes Geographic Information System (GIS) mapping data (Figure 3). It should be noted that disturbance or scalping of soils, particularly in developed areas, may have occurred since the soil survey was last updated.

The infiltration characteristics of soils are controlled primarily by soil texture, land cover/vegetation and other factors that affect soil structure, and land slope. In addition to soil infiltration characteristics, the potential rate of recharge to the water table is also controlled by the vertical permeability of the underlying sediments and the permeability and hydraulic gradient of the water table aquifer.

Soil types are shown on Figure 3. Drainage characteristics are summarized in the soil Hydrologic Group classifications, which is the best indicator for the potential to infiltrate contaminants into groundwater. Descriptions of the classifications are as follows:

Hydrologic Group A soils are have a high infiltration potential when thoroughly wet and consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Hydrologic Group B soils have a moderate infiltration rate when thoroughly wet and consist of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Hydrologic Group C soils have a slow infiltration rate when thoroughly wet and consist chiefly of soils having a layer that impedes the downward movement of water or have moderately fine to fine texture. These soils have a slow rate of water transmission.

Hydrologic Group D soils have a very slow infiltration rate when thoroughly wet. These soils consist of clays, soils that have a claypan or clay layer near the surface, or soils that have a permanently high water table. These soils have a very slow rate of water transmission.

For soils with two hydrologic groups, the first letter refers to drained areas and the second letter refers to undrained areas.

Within the DWSMA for Lake City, soil types in all hydrologic groups are found, with the highest concentration of Group A soils found in the vicinity of Well 2. Construction and development in the

DWSMA may have disturbed native topsoils, however, so current soil conditions in the DWSMA may not necessarily be reflected in the coverage shown on Figure 3. As management efforts occur for sites with potential contamination sources and spills, soil types should be considered for their ability to infiltrate contaminants into groundwater. Greater emphasis should be placed on sites with highly permeable soils, as leaks or spills could rapidly infiltrate before cleanup activities can take place.

4.4 Water Resources

The Mississippi River (Lake Pepin) is the regional groundwater discharge boundary. Tributary streams including Gilbert Creek and Miller Creek generally receive groundwater discharge in upstream areas where bedrock is near the surface and recharge the groundwater where they cross the major river terraces along the Mississippi River. Regarding the Mississippi River/Lake Pepin, it is not believed that the City's wells are in strong hydraulic connection to the river.

Surface waters within the DWSMA are managed by the City of Lake City and Wabasha County. Figure 4 shows water resources within the DWSMA. The Minnesota Department of Natural Resources (DNR) delineates public waters and public drainage ditches. Maps of public waters and drainage systems are maintained by the DNR Division of Waters. A 100-year FEMA flood zone for Miller Creek is present within the DWSMA. Flood plain areas pose a potential threat if flood waters impact wells that are not sufficiently protected, causing contaminated water to infiltrate into the aquifer via impacted wells.

The connection between the aquifer and the surface results in the potential for contaminants to infiltrate into the aquifer. The topographically defined area that drains to the groundwater capture zones was delineated and included in the WHPA and DWSMA delineations as described in the *Part 1 Wellhead Protection* (Appendix I).

4.5 Groundwater Quality

Routine monitoring by the Public Water Supply Program shows no contamination above existing water quality standards. The maximum nitrate concentrations measured in samples from the public supply wells were measured at 3.6 mg/L in 2015. Nitrates concentrations measured in 2019 in the City's wells ranged from 2.2mg/L to 3.3 mg/L. This shows a small overall increase from the maximum concentration of 2.7 mg/L observed in 2005. While the readings to date have been well below the regulatory threshold of 10.4 mg/L, the readings do suggest that there may be some influence from surficial activities on nitrate levels. Typical sources of nitrates are from agricultural activities (row crop fertilization and animal feedlots) and septic systems.

The upward trend in nitrates between 2005 and 2015 may also be the result of overall increases in precipitation during the same time period. Increased precipitation may result in more nitrates entering stormwater runoff before it is able to be absorbed and utilized in agricultural areas. Continued monitoring of nitrates trends will help determine what impact precipitation has on nitrates levels.

Currently, no tritium data or other isotopic data exists for the Lake City wells which could better define aquifer vulnerability and impacts from surface water infiltration. Recommendations for additional testing were provided in the *Part 1 Wellhead Protection* (Appendix I). These recommendations were considered when developing the Implementation Plan in Chapter 8.

4.6 Groundwater Quantity

The State Water Use Data System (SWUDS) database maintained by the Minnesota Department of Natural Resources (DNR) lists all permitted withdrawals of water exceeding one million gallons per year or 10 thousand gallons per day. A search of the database was performed to identify high capacity wells in the area that might affect delineation of the wellhead protection area. Two high capacity wells were identified in the database, one serving Lake City Country Club and one serving The Jewel Golf Club. Annual water withdrawals from these wells averages 22.4 million gallons and 5.4 million gallons, respectively.

The two high capacity wells in the area were not found to have a significant impact on the capture zones for Lake City's wells. There are no known plans for any new high capacity wells within the DWSMA at this time. Any planned new wells, or increases in pumping volumes to existing wells, will need to be approved by the DNR. Any potential impacts to the Lake City DWSMA will need to be identified at that time.

4.7 Surface-Water Quality

A summary of available surface-water quality data was provided in the *Part 1 Wellhead Protection Plan* report (Appendix I). Water quality data was found only for Lake Pepin. Based on the available data, it is not believed that there is a strong hydraulic connection between the interval of the aquifer screened in Well No. 3 and Lake Pepin. Terrace deposit wells in other very similar settings have been found to not be directly connected to the Mississippi River, per personal communications with Justin Blum, the MDH hydrogeologist for this area. Lake bottom sediments are expected to provide some hydraulic resistance as well as assimilative capacity to attenuate potential surface contaminants such as nitrate.

Surface waters of greater importance will be creeks and tributaries that drain stormwater runoff across the DWSMA to the Mississippi River. There exists a potential that surface water may infiltrate into the highly-vulnerable capture zones before reaching the river. At present, water quality data from these streams and tributaries does not appear to be available. The *Part 1 Wellhead Protection Plan* report recommends collecting water quality data from the four City wells to look for isotopes that indicate an influence from surface waters in the DWSMA. Additional samples collected from surface waters may also help to establish a connection, if one exists.

4.8 Surface-Water Quantity

Regional discharge for the surficial aquifer is to the Mississippi River (Lake Pepin). Gilbert Creek and Miller Creek are gaining streams above the Mississippi River terraces, but they are believed to be losing streams on the terraces. Stream discharge measurements are not currently available for these creeks.

5.0 CONTAMINANT SOURCE INVENTORY

As part of the City of Lake City wellhead protection planning process, an inventory of potential contaminant sources was conducted within the delineated Drinking Water Supply Management Area (DWSMA). The purpose behind this inventory was to develop a database listing potential sources of contamination that may affect the public water supply wells. The results of this effort provide the City with information about contaminant sources identified in the DWSMA. Wellhead protection planning strategies can be directed in a manner that will deal with any potential sites before they become a problem or a threat Lake City's drinking water supply.

5.1 Land Use

Understanding land use is important in determining key areas for concern in managing a wellhead protection area. For example, knowledge about the location of industrial or commercial development in relation to the DWSMA may reveal a need to manage the activity within more sensitive areas. Additionally, any land uses that currently pose a potential threat to the City's water supply need to be highlighted to increase awareness of any concerns.

Based on the vulnerability of the DWSMAs and the results of the Second Scoping Decision Notice, the following criteria were used to inventory land uses and potential contaminant sources:

1. All areas within the groundwater capture zone will require an inventory of wells and other borings.
2. All other land uses and potential sources of contamination must be evaluated for the entire DWSMA.

Each category of potential contaminant source or pathway is described separately below. Appendix C contains figures showing existing zoned land use and planned future land use within the DWSMA. Figure 5 shows the mapped land cover for the DWSMA. Figures 6 through 10 show the locations of wells and other potential contaminant sources identified in the inventory. See Appendix A for a complete listing of the potential contaminant sources inventory (PCSI).

5.2 Shallow Disposal Wells

Disposal wells are potential sources of contamination that also must be inventoried for the entire DWSMA. The USEPA regulates shallow disposal wells (Class V injection wells). Automotive disposal wells have been banned in groundwater protection areas and cesspools have been banned throughout Minnesota. Furthermore, the Code of Federal Regulations (Title 40, Chapter I, Part 144.12(a)) states that "no owner or operator [of an injection well] shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons."

At present, no potential automotive disposal wells or cesspools have been identified in the DWSMA. Shallow disposal wells will be added to the inventory in the future if they are discovered during plan implementation.

5.3 Wells

An important component of the potential contaminant source inventory was the location of any known wells within the portion of the DWSMA surrounding the groundwater capture zones. Since wells may penetrate confining layers that normally protect an aquifer, they are potential pathways for contaminants to rapidly enter the aquifer. A search for active and abandoned wells was undertaken for the groundwater DWSMA.

The following sources were used to identify wells in the DWSMA:

1. Minnesota Geological Survey's County Well Index (CWI)
2. Minnesota Department of Natural Resources SWUDS database
2. Areas identified by City of Lake City staff as not served by a public water supply
3. City of Lake City staff knowledge about current and historical land uses

The identified wells are plotted on the map in Figure 6. The results of the well search indicated that there are 45 wells known to be in the groundwater capture zone DWSMA, including the municipal supply wells. This does not include wells which were known to once exist, but have since been properly sealed according to the Well Code. Properly sealed wells are no longer considered to be a potential avenue for contamination to reach the aquifer. The accuracy of the locations of the wells varies. Whenever possible, wells were mapped using accurate coordinates obtained by MGS or MDH. All wells were mapped on the land parcel identified in the data source.

A further 16 "suspected" wells were also identified in the groundwater capture zone portion of the DWSMA. This was based on properties in the DWSMA that have a residence or business that is not currently connected to municipal water supply. While these properties do not have a well listed in the available databases, it is assumed that at least one well must be present at each property. Further efforts to survey these properties to determine the location and status of these wells has been included in the Implementation Plan in Chapter 8.

A majority of the private wells identified in the inventory are used for domestic water supply. A smaller number of irrigation wells and monitoring wells are also present.

Additionally, the MDH has provided Lake City with a report listing old municipal wells that are no longer in service and where sealing records are not available. That report is included in Appendix A. A former municipal well (Well 3) is identified next to the currently active Well 3A. This well is open to a deeper aquifer and should be considered for sealing, especially if the casing has degraded and increases the potential for cross-contamination between aquifers. Other potential unsealed wells in the DWSMA include an old creamery well that is believed to be in the DWSMA and may not have been properly sealed. During the effort to locate and seal private wells in the DWSMA, old unused municipal wells and other old public supply wells should also be targeted, to see if they can be located and, if necessary, sealed to meet current Well Code requirements.

5.4 Point Sources

An important component of the potential contaminant source inventory was to look for any potential point sources within the DWSMA that might be a threat to the quality of the public water supply. An example of a point source would be an underground storage tank or any facility that stores, handles, or disposes of materials that, if introduced into the environment, might degrade the quality of the water pumped from the aquifer.

The first step in the point-source search was to investigate available resources listing potential sites of concern. The Minnesota Pollution Control Agency maintains a containing information about underground storage tanks, above ground storage tanks, hazardous waste generators, spill sites, agricultural chemical storage sites, and other potential point sources of contamination. The information obtained from this database was compiled and reviewed for location accuracy. The data points were associated land parcels, and items located within the DWSMA were identified and inventoried according the required criteria. Data points were located by the address information provided in the databases and by City of Lake City staff.

The locations of the inventoried potential point sources are mapped in Figures 7 through 9. A summary of point sources is included in Section 5.8, below. A complete listing is provided in Appendix A.

Of the identified point sources, the most numerous point source (other than wells and septic systems) was animal feedlots in the outer areas of the DWSMA. While all of the feedlots are outside of the wellhead capture zones for Lake City's wells, they may degrade the quality of stormwater runoff that enters into these capture zones.

An inventory of Subsurface Sewage Treatment Systems (SSTS, commonly known as septic systems) was also included in the point sources inventory. This includes septic systems serving single residences or businesses and large septic systems serving 20 or more persons or two or more facilities. The inventory includes 105 known SSTS sites. A further 41 "suspected" SSTS sites were identified based on properties with homes or businesses that are not connected to municipal sewer. Known and suspected septic systems are mapped on Figure 10. Septic systems in the highly vulnerable portions of the groundwater capture zones are of the greatest concern, as infiltration from any failing systems in these areas pose the greatest risk to groundwater quality. A total of 17 septic systems were inventoried in the highly vulnerable 10-year groundwater capture zones. No septic systems were inventoried within the 1-year groundwater capture zones.

Proactive management of potential point sources of contamination within the 1-year groundwater capture zones, or Emergency Management Zones, in high vulnerability areas are of most immediate concern. These items pose the greatest potential risk to the quality of water drawn from the public water supply wells. Nevertheless, all of the potential sources in the inventory have the potential to impact groundwater quality and should be managed appropriately.

5.5 Non-Point Potential Contaminant Sources

Non-point sources of contamination are associated with land use not specific to a particular point or

land parcel. For example, agricultural fields to which fertilizers and/or pesticides have been applied are potential sources of infiltration or runoff containing nitrates and pesticides or pesticide degradation products. Golf courses, residential areas, and ball fields where turf chemicals are applied may also be non-point sources of potential contaminants. Parking lots and roads may also be potential non-point sources of contamination to the aquifer if they drain to high vulnerability areas.

The land cover map on Figure 5 provides a guide to areas that may be non-point sources (Appendix C). Non-point sources are a concern throughout the Wellhead Protection Area because contaminants released at the surface within the WHPA may be infiltrated locally or be carried by runoff and infiltrate into the aquifer at a point closer to the City's wells.

5.6 Public Utility Services

Another potential concern within the DWSMA is the potential for contamination deriving from infrastructure-related accidents. Roadways, railways and oil pipelines are examples of transportation routes that may be the site of a leakage or spill that could threaten the aquifer. Other infrastructure, such as storm-water ponds and storm sewers may divert water to an area with higher surface water infiltration, creating an increased sensitivity to pollution.

US Highways 61 and 63 are the major highways intersecting the DWSMA. Other major roadways are shown in Figure 1. The Canadian Pacific Railway tracks also intersect the DWSMA and is located within the 200-foot Inner Wellhead Management Zone for Well 4, posing a great risk to the well if a spill were to occur within this area. A natural gas pipeline intersects the DWSMA, but natural gas leaks are not expected to pose a threat to aquifer water quality.

A map of the stormwater sewers and sanitary sewer for the City of Lake City in and near the DWSMA is also provided in Figure 10. These sewers intersect all capture zones for the City's wells, including the 1-year capture zone (or emergency response area). Sanitary sewers were also identified within the 200-foot Inner Wellhead Management Zones for all four municipal wells. Leaks from sewers in these areas pose a threat to groundwater quality in the aquifer serving the City's water supply system.

In addition to roadways, a boat landing is present within the DWSMA (seen on Figure 4A) at Ohuta Municipal Park. While minor spills in Lake Pepin itself are likely to be diluted and carried downstream by the current, operations to launch and recover boats may lead to tank spills or punctures on land near the landing site.

Public water supply wells are also components of the public utility infrastructure. The locations of the wells are shown on Figure 1. Currently, the only wells classified as public supply (or municipal) within the DWSMA are the four City of Lake City wells.

5.7 Active Sites of Contamination

Figure 8 shows known spill sites within the DWSMA. These are also listed in Appendix A. Currently, there are no known active sites of contamination within the delineated DWSMA. While several sites exist within the DWSMA that have the potential to contaminate the aquifer, none of these sites is known to currently be leaking or discharging hazardous wastes into the soil or groundwater.

Should any contamination sites be identified within the DWSMA, they will be prioritized in order of the threat they pose to the municipal wells. Site specific soil conditions, geology, surface runoff, and estimated time of travel to the public supply wells will be investigated to assess the level of threat to the City’s water supply.

5.8 Summary

The scope of the potential contaminant source inventory can be seen in the summary given below.

Type of Potential Contaminant Source	Total Identified	Total In Emergency Response Area
Underground tanks	11 tanks (3 sites)	2 (1 site)
Above Ground Tanks	11 tanks (2 sites)	0
Hazardous Waste Generator	20	6
Spill Site	26 (inactive)	5
Brownfield Site	2 (inactive)	0
VIC (voluntary investigation and cleanup) Site	3 (inactive)	0
State Assessment Site	2 (inactive)	0
Animal Feed Lot	32	0
SSTS (subsurface sewage treatment system)	146	0
Class V wells	0	0
Natural gas pipeline	1	0
Large sewer system	1 (municipal sewer)	1 (municipal sewer)
Wastewater Discharge (SDS)	4	1
Stormwater Outlet	5	1
Wells	61	6*

*including four Lake City municipal wells

The acreage of non-point source land uses was not determined for this report, but the land use and zoning maps in Appendix C provide a tool for understanding the scope of land uses in the DWSMA. The inventory was made as complete as practicable at the time of the development of this Plan. Further data collection issues and the other problems and opportunities associated with land uses in the DWSMA are addressed in Chapter 7. Plan goals, objectives, and actions are addressed in Chapter 8.

6.0 PROJECTED CHANGES TO THE ENVIRONMENT, LAND USE, AND SURFACE AND GROUNDWATER

6.1 Changes to the Environment and Land Use

The City of Lake City and surrounding areas have seen only small growth since 2000, according to the City's Comprehensive Plan developed in 2012 and update in 2018. Future projections of population growth were not provided in the Comprehensive Plan, but it is noted that Lake City has the room and infrastructure to accommodate future growth. A generalized map of future planned land use is included in Appendix C.

Growth in the City of Lake City is not expected to require an expansion of the current water supply system. The current system is expected to supply the City's needs beyond the ten-year time frame of this Wellhead Protection Plan. A small increase in average annual and maximum day water demands is likely over the next ten years, however. However, historical data has shown that water usage has actually declined over the past decade, due in part to water conservation efforts and above-average precipitation years. Additionally, a large commercial water user within Lake City has scaled back their water usage in recent years, moving from a single pass cooling system to a cooling system that recirculates water. Total Lake City water usage in 2018 was 372.5 million gallons compared to 427.7 million gallons in 2009.

6.2 Changes to Surface and Groundwater

The City of Lake City's Water Supply and Distribution Plan projected a water demand of 515 million gallons per year by 2010. Actual water usage ended up being significantly less, with the past six years (2014-2019) showing less than 400 million gallons annually. Therefore, growth in water demand has been significantly less than projected. While demand may eventually rise again, no significant increases to groundwater withdrawals are expected over the ten-year life of this plan.

Any additional development within the DWSMA will slightly alter slightly the water balance because the developed areas will contribute a greater proportion of rainfall and snowmelt to surface water runoff and lesser amounts to evapotranspiration and direct infiltration than they do as vacant parcels or agricultural land. However, the net impact of development on groundwater recharge is uncertain and depends on the design and maintenance of the stormwater management system.

7.0 PROBLEMS AND OPPORTUNITIES

7.1 Problems

1. The DWSMA for Lake City is vulnerable to contamination.
2. Portions of the DWSMA include areas of industrial and commercial activity, some of which represent potential point sources of contaminants.
3. Residential areas and the golf course in the DWSMA represent potential non-point sources to which the water supply system may be susceptible if landscaping activities are conducted inappropriately.
4. Agricultural crop areas of the DWSMA also represent potential non-point sources to which the water supply system may be susceptible if best management practices are not followed.
5. Animal feedlots in the DWSMA represent potential point sources to which the water supply system may be susceptible if best management practices are not followed.
6. The number and location of improperly abandoned wells in the DWSMA is not known with a high degree of certainty. Old, unsealed municipal wells, brewery wells and creamery wells may also be present within the DWSMA.
7. The number and location of active septic systems is not known with great certainty, as the County's database does not appear to be complete.
8. Large portions of the DWSMA extend beyond the city limits and are outside of the jurisdiction of the City of Lake City. The City does not have the authority to establish land use controls for these areas.
9. Small increases in nitrates concentrations in the City's wells have been observed over the past decade.
10. More water quality data is needed before a good understanding of the impacts of surface waters in the DWSMA can be determined.

7.2 Opportunities

1. The industrially and commercially zoned areas within the DWSMA are within city limits and therefore are subject to official zoning controls administered directly by the City of Lake City.
2. An opportunity exists to work with Wabasha County and the affected Townships in planning land uses in order to protect the area's groundwater resources.
3. Growth in the DWSMA has been relatively light, with no significant changes expected in the next ten years.
4. The City's Environmental Commission provides an opportunity to have increased oversight of issues that may impact water quality within the Lake City area.

7.3 Status of Existing Governmental Controls Concerning Water and Related Land Use

City of Lake City

Zoning ordinances are the primary means by which the City of Lake City controls water and land use within the city. The land in the DWSMA is currently zoned as shown in Appendix C.

Other official controls available to the City of Lake City for regulating land use within the DWSMA include conditional use permits and other ordinances. These controls, along with the proposed City of Lake City wellhead protection implementation plan, are anticipated to be adequate in managing the land uses within the City of Lake City portion of the DWSMAs. Any deficiencies noted will be addressed and corrected in revisions to the wellhead protection plan.

Wabasha County

The Wabasha County Environmental Services Department is responsible for planning and managing programs to protect health and the environment. These programs include environmental health; planning & zoning; solid waste, recycling & household hazardous waste; and water planning.

The *Comprehensive Land Use Plan for Wabasha County, Minnesota* was adopted in August 1998. Wabasha County has also adopted shore-land and floodplain zoning ordinances. No updates to the County's Comprehensive Land Use Plan are currently scheduled.

The County is delegated to permit and regulate water well construction, with the exception of public water supply wells which are overseen by the MDH. Septic systems are also permitted and regulated by the County.

The County also has an Emergency Management Office that is available to assist to prepare for, respond to, and recover from all-hazard emergencies, including large spills or contamination events (e.g. floods) that could impact the DWSMA.

Lake Township and Mount Pleasant Township

Planning and zoning ordinances for both townships is covered by Wabasha County ordinances. Management of potential contamination sources within the townships is either overseen on the County level (for wells and septic systems) or on the State level (for tanks, feedlots, etc.).

State and Federal Regulations

Many of the state and federal regulations for potential sources of pollution are design and operation standards. Examples are regulations concerning on-site sewer systems, underground storage tanks, and landfills. It should be noted that the state's design and operation standards would be adequate for most contaminant sources within the City of Lake City DWSMA.

Land use authority that addresses the location of potential sources of contamination within the City of Lake City DWSMA rests with local units of government according to Minnesota law. Since the City of

Lake City DWSMA falls within several local units of government, each local unit of government has jurisdiction over the territory of the DWSMA that falls within its borders.

State and federal governmental units regulate:

- Public water supply well construction – MDH (Minnesota Department of Health);
- State groundwater appropriation permits – DNR (Department of Natural Resources);
- Public water supply quality – MDH;
- Setbacks for specific contaminant sources from a well – MDH and local governments through conditional use permitting;
- Tank control program – MPCA (Minnesota Pollution Control Agency), MDA (Minnesota Department of Agriculture);
- Agricultural chemical storage/handling – MDA
- Animal Feedlots - MPCA
- Shallow disposal wells - U.S. EPA (Environmental Protection Agency).

Any of the permitted activities which have the potential to affect the wellhead protection delineation and/or the quality or quantity of the City of Lake City water supply should be reviewed by the respective state agency before a permit can be approved.

The wellhead protection planning team recommends that no additional regulations be imposed at this time and are confident that local issues may be adequately addressed through existing processes.

8.0 WELLHEAD PROTECTION GOALS, OBJECTIVES AND IMPLEMENTATION PLAN

Goals and objectives have been developed based on the results of the vulnerability analysis, the results of the potential contaminant source inventory, and the projected changes to the environment, land use, and surface and ground water. In general, goals and objectives are ranked in order of priority.

8.1 Goals

The following goals form the framework within which the information generated during delineation and source inventory activities is evaluated and upon which the planning activities are based:

1. To continue to provide high quality water that meets state and federal drinking water standards.
2. Implement best management practices for properties containing potential contaminant sources to avoid adversely impacting the quality of the water drawn from the aquifer.
3. To work cooperatively with Wabasha County on regional aquifer protection actions and to ensure that land use planning and zoning take into account protection of the aquifer.
4. Educate City personnel, residents, and the business community about wellhead protection goals and wellhead protection plan implementation.

8.2 Objectives

To meet these goals, the following specific objectives were developed:

1. Monitor the 200-foot Inner Wellhead Management Zones and one-year time of travel delineations to prevent contamination in the areas immediately surrounding the wellheads.
2. Conduct a survey of wells within the DWSMA to update inventory.
3. Seal abandoned or unused wells located in the groundwater capture zone and encourage proper well maintenance.
4. Identify and manage new and existing spills or potential contaminant sources within the DWSMA.
5. Manage risks of possible contamination of groundwater from accidental spills.
6. Educate property owners about the need for having complying onsite sewage treatment systems in the DWSMA.
7. Work with MPCA to implement requirements for feedlots and manure management located in WHP areas.
8. Educate residential property owners about proper use of lawn and garden chemicals.
9. Encourage property owners to adopt tillage, chemical and nutrient BMPs (best management practices) for cropland within the DWSMA.
10. Ensure that land use planning and zoning takes into account protection of the aquifer underneath the DWSMA.
11. Be involved in the development and/or implementation of surface and groundwater plans for Wabasha County.
12. Educate the public about hazardous waste and household hazardous waste.
13. Develop specific guidance for City personnel and City Departments to use so that staff can make informed day-to-day decisions.
14. Develop public support and understanding for the wellhead protection plan through the use of

- newsletters, press releases, displays at special events, handouts, and the website.
15. Explore possible flood protection measures for properties in or near flood plain areas.
 16. Repair or replace any sewer lines that are found to be leaking, cracked, or deteriorated.
 17. Collect relevant groundwater and surface water quality samples for use in future planning updates.

8.3 Implementation Plan

Objective 1: Monitor the 200-foot Inner Wellhead Management Zones and one-year time of travel delineations to prevent contamination in the areas immediately surrounding the wellheads.

Action 1A: Continue to monitor setbacks for all potential sources of contamination located within Inner Wellhead Management Zones. Update IWMZ inventory.

Who: Lake City staff

Cooperators: MDH

When: 2023

Cost: Staff time

How: The wellhead protection manager will ensure that any new regulated activities will meet the required setbacks.

Status: Last update completed in 2015. Next update to be completed in 2023.

Action 1B: Conduct more frequent updates and reviews to the potential contaminant source inventory for the ERAs.

Who: Lake City staff

Cooperators: MDH

When: 2022, then every two years following

Cost: Staff time

How: Lake City staff will conduct a review every two years of any new potential sources of contamination within one-year TOT zones. The status of previously identified PCSI sites will also be reviewed to determine if a change in land use has occurred.

Status: Not currently implemented.

Objective 2: Conduct a survey of wells within the DWSMA to update inventory.

Action 2A: Make direct contact with well owners in the DWSMA to determine location and status of each well. Update inventory to reflect current understanding of wells.

Who: Lake City staff

Cooperators: Wabasha County, MDH

When: 2024

Cost: Lake City staff time, consultant time

How: Send a survey to property owners with known or suspected wells. Determine status of wells on site. Obtain well construction records if available. Update inventory maps, tables, and database

Status: Completed in 2019. Repeat survey by 2024.

Action 2B: Periodically check State and County databases for changes of wells within the DWSMA, including new wells, maintenance of existing wells, or asealing of wells. Work with Wabasha County to be notified when existing wells are disclosed in property transfer.

Who: Lake City staff

Cooperators: MDH, Wabasha County

When: 2022, then every two years

Cost: Lake City staff time

How: Contact designated Point of Contact staff at MDH and County. Utilize well disclosure tool from MDH. Enlist engineering consultant to update inventories and maps.

Status: Completed in 2019. Next update to be completed by 2022

Objective 3: Seal abandoned or unused wells located in the groundwater DWSMA and encourage proper well maintenance.

Action 3A: Provide Wabasha County and MDH with a list of unused and unsealed well locations as City personnel discover them.

Who: City of Lake City staff

Cooperators: City of Lake City, Wabasha County, MDH

When: Ongoing

Cost: City staff time

How: Prepare written report for distribution to Wabasha County and the MDH, so databases are maintained on wells that need sealing. Enlist support of cooperators to encourage sealing of wells and enforce well code requirements, if necessary.

Status: Currently implemented

Action 3B: Make property owners aware of financial and technical resources available to assist in securing grant funding for properly sealing wells. Pursue grants and cost sharing on behalf of property owners for identified wells in need of sealing.

Who: City of Lake City staff

Cooperators: Wabasha County ESD, MDH

When: Ongoing

Cost: Staff time

How: Research types of grants and loans available for permanent well sealing and distribute this information to appropriate well owners, as requested. If financial assistance is required to facilitate well sealing, apply for wellhead protection implementation grant(s) or cost sharing to seal wells.

Status: Implemented in 2019. Repeat again as new unsealed wells are discovered or when next well survey occurs.

Action 3C: Send reminder notices to well owners reminding them of proper well maintenance.

Who: City of Lake City staff

When: 2024

Cost: Staff time, printing and postage costs

How: Annual notices will be sent to addresses identified in the DWSMA well inventory.

Status: Previously implemented in 2019. Repeat again by 2024.

Action 3D: Include educational information on wells in an existing newsletter and website

Who: City of Lake City Staff

When: Ongoing

Cost: Staff time

How: Publish best management practices for well owners. Provide contact information for well sealing programs.

Status: Currently implemented.

Action 3E: Consider new ordinances for private wells within the City, limiting the construction of new wells and requiring sealing of wells in areas where municipal water is available.

Who: City of Lake City Staff

When: As needed.

Cost: Staff time

How: Identify potential threats from private wells on aquifer quality. Explore ordinance changes that would reduce risks from private wells. Make appropriate recommendations to City Council.

Status: Not currently implemented.

Action 3F: Investigate and seal potential old, unsealed municipal wells and other public supply wells, including former brewery and creamery wells.
 Who: City of Lake City Staff
 Cooperators: MDH
 When: 2021, then ongoing as needed.
 Cost: Staff time
 How: Identify potential unsealed wells to be located. Work with MDH well management to locate wells. Uncover wells when located and examine condition. Prepare wells for sealing and hire contractor to complete sealing. Pursue grant money to assist in paying for well locating, investigations, and sealing.
 Status: Not currently implemented.

Objective 4: Identify and manage new and existing spills or potential contaminant sources within the DWSMA.

Action 4A: Determine if state agencies or local services have knowledge of new spills or potential contaminant sources in the DWSMA. Review database of tanks to update database as needed. Obtain updates from State agencies regarding status of known spill sites and obtain updates on permitted tank and hazardous waste sites. Work cooperatively to help ensure Lake City’s wells are being protected from spill migration.
 Who: Lake City staff
 Cooperators: MPCA, MDA, MDH, Local emergency response services
 When: 2022, then every two years
 Cost: Staff time
 How: Contact designated Point of Contact staff at MDH, MPCA, and MDA staff acting as a liaison to the wellhead protection program. Update inventory with identified spills and tanks, and make modifications if status changes in identified sites have taken place. Obtain latest reports and findings on identified spill sites. Work with agencies to help prioritize sites and implement changes that will protect the City’s water supply wells. Obtain any needed monitoring data from investigations to determine contaminant levels in the aquifer and assess threats to City’s wells. Determine if additional monitoring wells are needed to assess the threat to the City’s wells.
 Status: Completed in 2020. Next round in 2022.

Action 4B: Contact property owners with potential contamination sources and make them aware of their role to play in protecting groundwater and drinking water.

Who: Lake City staff
Cooperators: MPCA, MDH, MDA
When: 2022
Cost: Staff time, consultant time
How: Prepare mailings or use social media to contact tank owners and hazardous waste generators with educational information on wellhead protection and best management practices. Provide contact information for property owners to obtain additional information, if needed.
Status: Not currently implemented

Objective 5: Manage risks of possible contamination of groundwater from accidental spills.

Action 5A: Work with emergency management teams to develop a spill response plan for the DWSMA.

Who: Lake City staff
Cooperators: MPCA, MDA, Wabasha County, Local emergency response services
When: 2023
Cost: Staff time, consultant time
How: Meet with cooperators to begin development of an emergency response plan. Work with local emergency management teams to identify threats to groundwater resources. Prepare spill response plan to outline responsibilities and actions required to address potential impact to water supply system.
Status: Not currently implemented

Objective 6: Educate property owners about the need for having complying onsite sewage treatment systems in the DWSMA.

Action 6A: Cooperate with Wabasha County Environmental Services Department to obtain updates for the SSTS inventory as the database is expanded.

Who: City of Lake City staff
Cooperators: Wabasha County ESD
When: 2024
Cost: Staff time
How: Work with Wabasha County ESD staff to obtain updated list of all SSTS systems in DWSMA. Updates to the inventory will be made, if necessary, to reflect the most current conditions of each system. Prioritize sites within the highly vulnerable groundwater capture zones.
Status: Not currently implemented.

Action 6B: Provide information to SSTS owners identifying wellhead protection as a concern and provide pertaining to proper SSTS maintenance
Who: Wabasha County ESD
Cooperators: City of Lake City staff
When: 2022
Cost: Staff time
How: Send letters to SSTS owners to indicate their location within the wellhead protection area. Obtain packets from the University of Minnesota Extension Service that provide information on septic system maintenance. Make these packets available to SSTS owners upon request. Prioritize sites within the highly vulnerable groundwater capture zones.
Status: Not currently implemented.

Action 6C: Encourage SSTS owners in the groundwater capture zone to have a compliance inspection completed for their system, if one has not recently been conducted.
Who: Wabasha County ESD
Cooperators: City of Lake City staff, Wabasha SWCD
When: 2022
Cost: Staff time
How: Send letters to SSTS owners to make them aware of the importance of keeping their systems within compliance. Provide contact information to SSTS owners to have a compliance inspection completed. Request results of compliance inspection be forwarded to City, if any failing systems are identified. Pursue grants or funding to assist property owners to bring their systems back into compliance if owners cannot afford upgrades.
Status: Not currently implemented.

Objective 7: Work with MPCA to implement requirements for feedlots and manure management located in WHP areas.

Action 7A: Request MPCA to provide results of site evaluations of any feedlots located within the DWSMA.
Who: City of Lake City
Cooperators: MPCA, Wabasha SWCD
When: 2021
Cost: Staff time
How: Send mailing to MPCA showing boundaries of DWSMA along with current inventory of feedlots in the area. Request that results of any existing and future feedlot site evaluations be forwarded to Lake City.
Status: Not currently implemented.

Action 7B: Cooperate with the Wabasha SWCD to address non-compliant feedlots.
Who: MPCA
Cooperators: City of Lake City, Wabasha SWCD
When: As needed
Cost: Staff time
How: Enforce regulatory requirements for feedlots and require corrective action for non-compliant properties. Explore obtaining grants for corrective actions, if property owner is financially unable to make changes.
Status: Not currently implemented.

Objective 8: Educate residential property owners about proper use of lawn and garden chemicals.

Action 8A: Use existing literature programs (newspaper, social media, and website) to educate property owners about the advantages and disadvantages of the use of chemicals for lawn care and about ways to minimize the potential adverse environmental effect of the chemicals if they choose to use them.
Who: City of Lake City staff
Cooperators: Wabasha County SWCD, MDA
When: 2022, revisit every two years
Cost: Staff time
How: Obtain existing educational materials from cooperators. Publish newsletter article on an annual basis directly targeted at property owners, in which information sources are identified.
Status: Currently implemented.

Objective 9: Encourage property owners to adopt tillage, chemical and nutrient BMPs (best management practices) for cropland within the DWSMA.

Action 9A: Lake City will support Wabasha SWCD in managing and educating property owners on best management practices for agricultural areas.
Who: City of Lake City
Cooperators: MDA, Wabasha SWCD
When: Ongoing
Cost: Staff time
Status: Not currently implemented.

Objective 10: Ensure that land use planning and zoning takes into account protection of the aquifer underneath the DWSMA.

Action 10A: Request input with the County regarding land use planning decisions within the DWSMA that may affect aquifer quality.

Who: City of Lake City

Cooperators: Wabasha County

When: 2020, and ongoing as needed

Effort: Staff time

How: Send letter to the County requesting input into land use planning decisions within DWSMA and review of any changes in the land use or zoning. Provide recommendations on acceptable land uses within DWSMA. Identify concerns with addition of more potential contaminant sources within the DWSMA. Encourage City and Township to explore ordinances to prohibit certain potential contaminant sources from being introduced into the DWSMA

Status: Not currently implemented.

Action 10B: Make updates to the City's Comprehensive Plan that include wellhead protection and groundwater quality as a priority. Also include wellhead protection in any updates to the City's land use and zoning plans.

Who: Lake City staff

Cooperators: Wabasha County

When: 2022 or when planning updates occur

Effort: Staff time

How: Integrate wellhead protection into the Comprehensive Plan and land use (and zoning) plans, so future growth takes into account aquifer protection as a priority.

Status: Not currently implemented.

Objective 11: Be involved in the development and/or implementation of surface and groundwater plans for Wabasha County.

Action 11A: Inform appropriate county staff of the City of Lake City's wellhead protection efforts and request that they notify the City of Lake City of land or water management practices or modifications that are germane to the effort.

Who: City of Lake City staff

Cooperators: Wabasha County ESD; SWCD, MDH

When: 2020, ongoing as needed

Effort: Staff time

How: Send letters to cooperators requesting input. Attend meetings when planning priorities are being established. Review draft plan and provide feedback related to wellhead protection concerns.

Status: Not currently implemented.

Objective 12: Educate the public about hazardous waste and household hazardous waste.

Action 12A: Use existing newspaper, social media, or website to encourage residents to use the Wabasha County Household Hazardous Waste collection sites.
Who: City of Lake City Staff
Cooperators: Wabasha County
When: Annually
Cost: Staff time
How: Include information about wellhead protection and the importance of proper disposal of household hazardous wastes in the mailing. Provide facility address, operational hours, and Wabasha County Environmental Health Department contact and web site information.
Status: Currently implemented

Objective 13: Develop specific guidance for City personnel and City Departments to use so that staff can make informed day-to-day decisions.

Action 13A: Review responsibilities of each department. Determine action triggers that could affect wellhead protection activities. Establish means of educating City and city staff about wellhead protection planning and the role they play in ensuring its successful implementation.
Who: City of Lake City staff
When: 2021, annual review thereafter
Cost: Staff time
How: Prepare specific guidance for each department and educate City staff about its use.
Status: Currently prepared in outline form as part of this document.

Objective 14: Develop public support and understanding for the wellhead protection plan through the use of newsletters, press releases, displays at special events, handouts, and the website.

Action 14A: Use City's website, brochures, newspaper, or social media to enlist public support for the Wellhead Protection Plan.
Who: Lake City Staff
Cooperators: MDH
When: Annual updates as needed
Effort: Staff time, printing and publishing costs
How: Prepare educational materials for distribution using website, brochures, newsletters, consumer confidence reports, and/or social media. Vary educational methods from year-to-year to ensure that the public is reached through a variety of communication routes.
Status: Currently implemented.

Objective 15: Explore possible flood protection measures for properties in or near flood plain areas.

Action 15A: Review potential contamination sources in or near flood plain areas. Explore possible upgrades to help flood proof contamination sources.
Who: Lake City staff
Cooperators: MDH, MPCA
When: 2024
Cost: Staff time, cost of property improvements
How: Examine potential contamination sources and wells most at risk due to potential flooding. Determine possible upgrades to help mitigate risks. Pursue grant funding for upgrades if needed.
Status: Not currently implemented

Objective 16: Repair or replace any sewer lines that are found to be leaking, cracked, or deteriorated.

Action 16A: Identify sewer lines in the DWSMA that are damaged or deteriorated. Repair or replace sewer lines.
Who: Lake City staff
Cooperators: MDH
When: As inspections occur
Cost: Inspection costs, repair or replacement costs
How: Identify sewer lines in need of repair. Prioritize repairs or replacement of sewer lines in highly vulnerable capture zones and emergency response areas. Pursue grant funding if needed to assist with sewer repairs.
Status: Not currently implemented

Objective 17: Collect relevant groundwater and surface water quality samples for use in future planning updates.

Action 17A: Collect representative samples from wells and surface water bodies to analyze for stable isotopes and the MDH's standard assessment monitoring package. Results of these samples will help determine surface water interaction with groundwater, to assist future Wellhead Protection Plan updates.
Who: MDH staff
Cooperators: Lake City staff
When: 2025
Cost: Sampling and analytical costs, staff time
How: Lake City staff will contact MDH to arrange for sampling. Lake City staff to collect samples and send to MDH for analysis
Status: Not currently implemented.

Action 17B: Investigate the option of conducting a detailed age-dating study on the City's wells using the State contract for SF6 and CFC analysis. If successful, the results might be used to better constrain the age of water recharging the aquifer, impacting decisions on DWSMA management as wells as WHPA refinement.

Who: MDH staff

Cooperators: Lake City staff

When: 2025

Cost: Sampling and analytical costs, pump removal costs, staff time

How: Coordinate with the MDH hydrologist regarding well(s) of interest and sampling requirements. If well pump removal is required to obtain samples and is not already scheduled as part of the City's maintenance schedule, the pump removal and replacement could be covered as a grant-eligible activity.

Status: Not currently implemented

9.0 GUIDANCE FOR USE BY CITY OF LAKE CITY STAFF WELLHEAD PROTECTION PLANNING

To ensure that wellhead protection planning is viable for City of Lake City, the City staff should understand the nature of the City of Lake City's Plan and how their day-to-day actions pertain to the Wellhead Protection program

Wellhead Protection Manager: City of Lake City Public Works Director (Scott Jensen)

Activities Affecting Wellhead Protection

The list presented below reflects the type of information or activities that City staff may encounter or manage as part of their normal functions that should be communicated to the Wellhead Protection Manager. The Wellhead Protection Manager provides internal coordination and plan management, interaction with external cooperators, and regular evaluations of wellhead protection activities.

Public Works staff

- Well siting
- Well sampling and analysis results
- Contamination noted during construction
- Change in pumping of municipal wells
- Sanitary sewer line breaks/ruptures
- Sanitary sewer lift station overflow/failure
- Review of new construction within Inner Wellhead Management Zone
- Annual review of land use changes within one-year capture zone

Fire and Police

- Emergency response and spills
- Underground storage tank removal, particularly if contamination is observed
- Fire suppression (if techniques may affect water quality)
- Observed dumping

Planning and Zoning Department (Building Inspector)

- Hazardous materials storage or disposal (household, commercial, or industrial)
- New well construction
- Unsealed or abandoned wells
- Shallow Disposal Wells (Class V injection wells)

Planning, Zoning, and Planning Commission

- Down-zoning or other zoning changes
- Unusual infiltration or storm-water issues
- Environmental Assessment Worksheets (EAWs)
- Installation of high-capacity wells
- Special projects

Streets and Parks Department

- Observed dumping
- Turf management

In addition, several programmatic activities will need on-going review and consideration. These generally involve fewer departments, and are listed below.

City Administrator

- Review new ordinance development to ensure consistency with Wellhead Protection Plan
- Incorporation of wellhead protection recognition in City plans and controls.

Planning, Planning Commission, Utility Board

- Ordinance review and development of official controls, as necessary
- Interaction and liaison with other local units of government
- Education activities

10.0 PROGRAM EVALUATION

The City of Lake City will evaluate the progress of the implementation plan every two years. The Wellhead Protection Manager will prepare a progress report to be completed every two years after the Plan is adopted, at the end of even-numbered years. The progress report will briefly discuss the actions implemented by the City or any cooperators during the year, and actions that will be completed in the next two years. The progress report will be distributed to the City Council for their review after which it will be submitted to MDH.

According to Minnesota wellhead protection rules, this wellhead protection plan will be updated every 10 years from date of adoption or with the installation of any new municipal well to the water supply system.

11.0 EMERGENCY PREPAREDNESS AND CONTINGENCY PLAN

The City of Lake City developed emergency preparedness procedures as part of the update to their DNR Water Supply Plan. These procedures are designed to address contingencies which may require augmenting the City's water with other supplies.

The Water Supply Plan was submitted to the DNR and is currently under review. Approval of the plan is expected in Spring 2020. Notice of the plan approval will be provided in Appendix E when available.

12.0 PUBLIC PARTICIPATION AND PLAN REVIEW

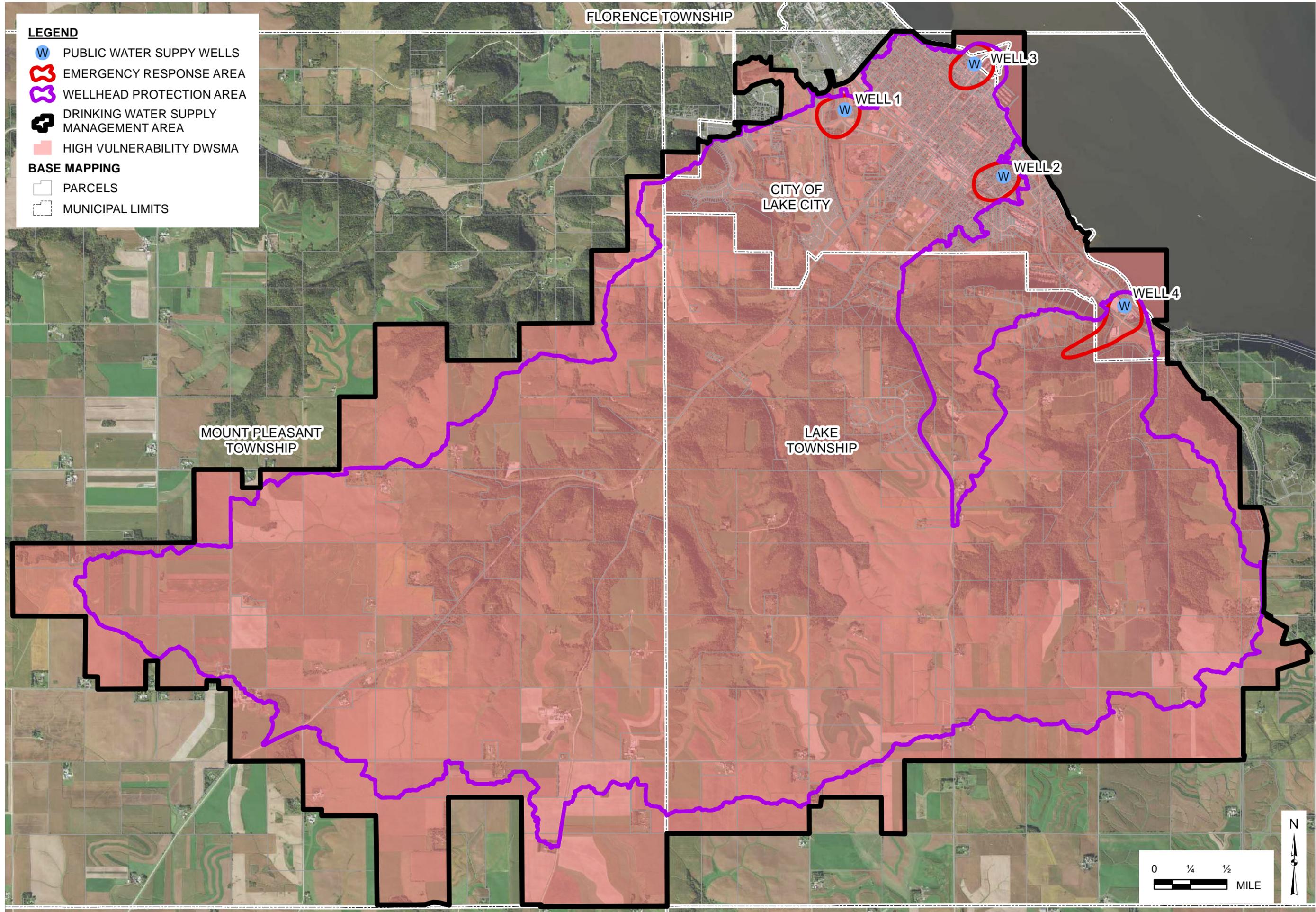
(Note: This section will be completed following the completion of the public review period and the public hearing.)

Following the completion of the Part 1 Wellhead Protection Plan, a public information meeting was held on March 14, 2019 to present the results of the Part 1 plan to the general public and invite comments to assist with the creation of the Part 2 Wellhead Protection Plan. In attendance were Scott Jensen (Lake City Public Works Director), Terry Peters (Wabasha SWCD), Jennifer Ronnenberg (MDH), Robyn Hoerr (MRWA), Mark Janovec (Stantec), and six members of the public. Comments reflected the need for the Part 2 plan to address nitrates levels in the aquifer and risks posed by animal feedlots.

The feedback from the public information meeting was considered in the development of the draft Part 2 Wellhead Protection Plan. The draft plan was submitted to local units of government for their review and comments on _____. The required 60-day review period ended on _____. Comments received from local units of government during the review period included: _____.

Oronoco held a public hearing on the Wellhead Protection Plan on _____. Comments received during the public hearing are included in the meeting minutes presented in Appendix G. Comments were considered and incorporated as necessary into this version of the Wellhead Protection Plan.

FIGURES



LEGEND

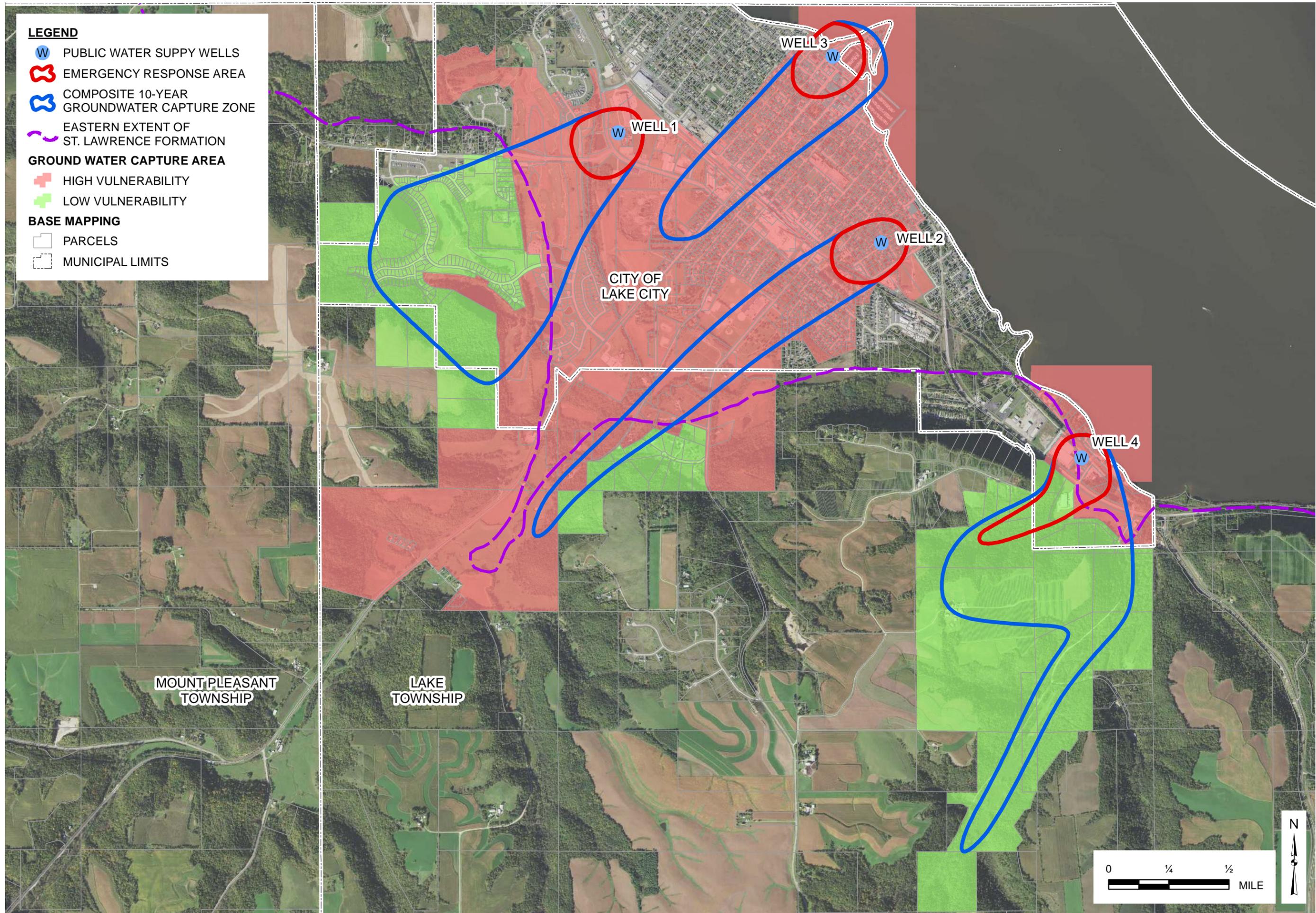
- W PUBLIC WATER SUPPLY WELLS
- ⊕ EMERGENCY RESPONSE AREA
- ⊕ WELLHEAD PROTECTION AREA
- DRINKING WATER SUPPLY MANAGEMENT AREA
- HIGH VULNERABILITY DWSMA

BASE MAPPING

- PARCELS
- MUNICIPAL LIMITS

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness or reliability of the information.

FIGURE 1 - WHPA AND DWSMA DELINEATION
LAKE CITY WELLHEAD PROTECTION PLAN

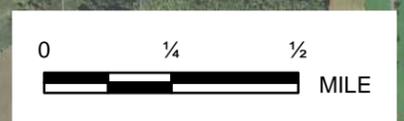


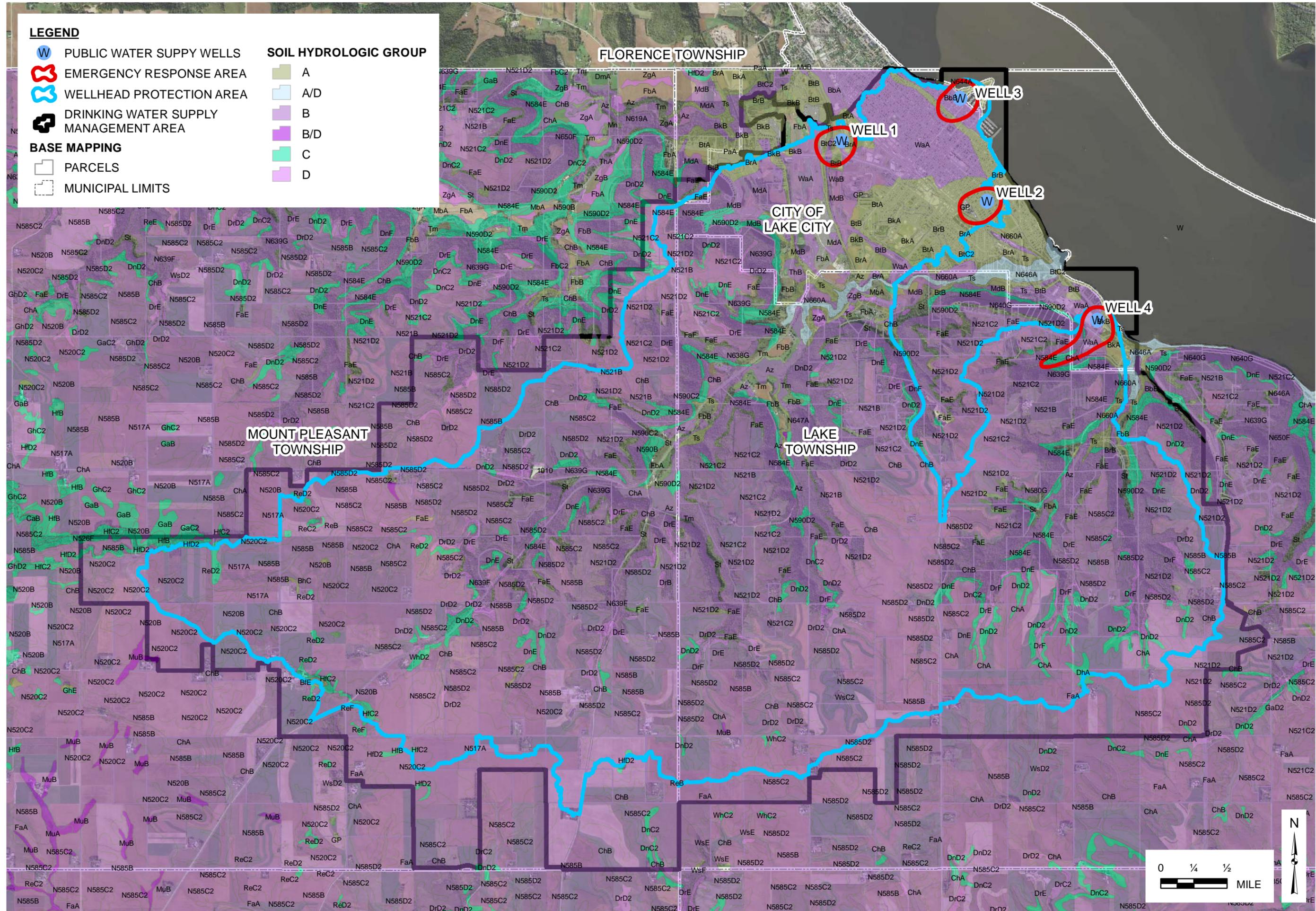
LEGEND

-  PUBLIC WATER SUPPLY WELLS
-  EMERGENCY RESPONSE AREA
-  COMPOSITE 10-YEAR GROUNDWATER CAPTURE ZONE
-  EASTERN EXTENT OF ST. LAWRENCE FORMATION
- GROUND WATER CAPTURE AREA**
-  HIGH VULNERABILITY
-  LOW VULNERABILITY
- BASE MAPPING**
-  PARCELS
-  MUNICIPAL LIMITS

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness or reliability of the information.

FIGURE 2 - GWCA VULNERABILITY
LAKE CITY WELLHEAD PROTECTION PLAN





LEGEND

-  PUBLIC WATER SUPPLY WELLS
-  EMERGENCY RESPONSE AREA
-  WELLHEAD PROTECTION AREA
-  DRINKING WATER SUPPLY MANAGEMENT AREA
- BASE MAPPING**
-  PARCELS
-  MUNICIPAL LIMITS

SOIL HYDROLOGIC GROUP

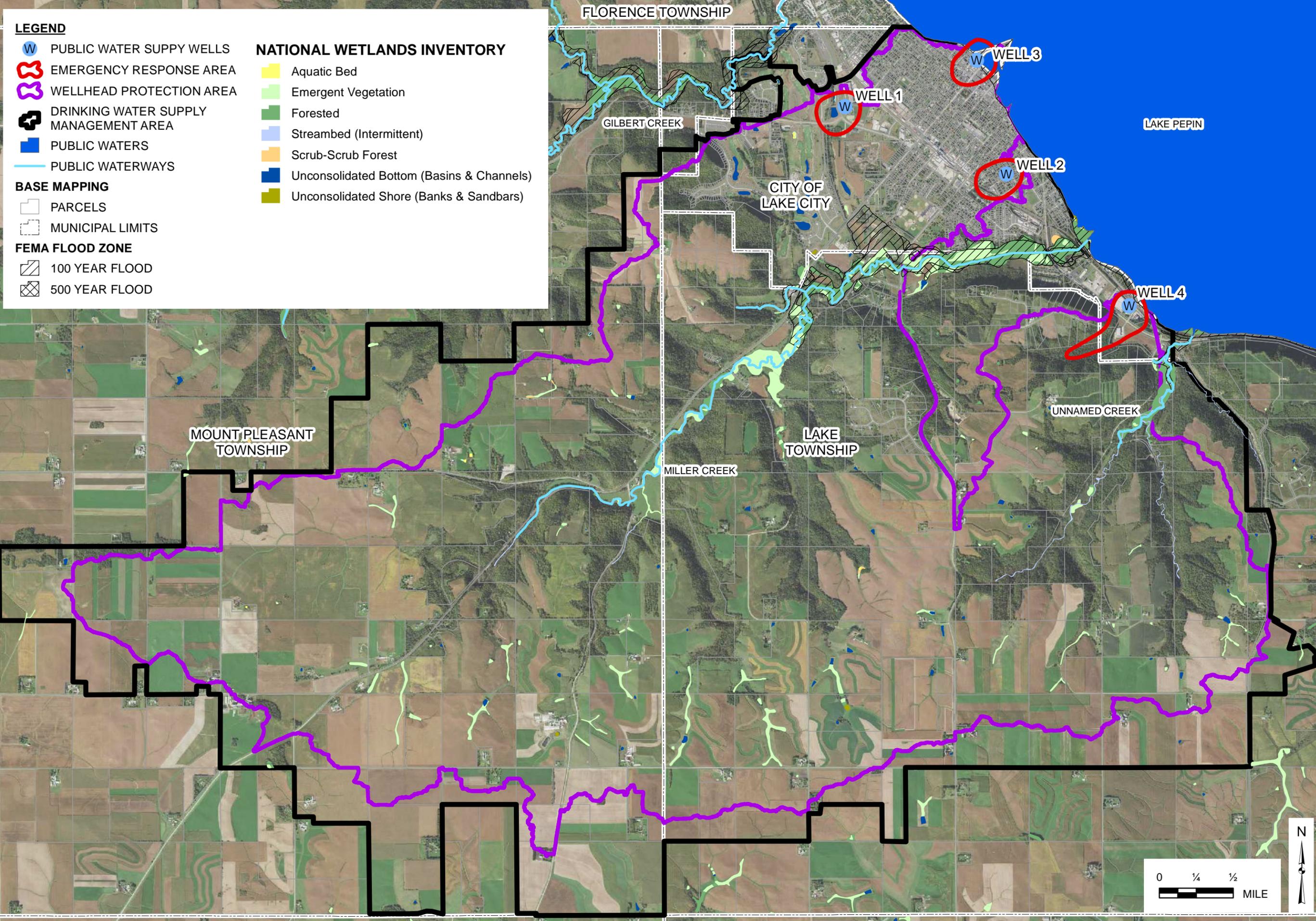
-  A
-  A/D
-  B
-  B/D
-  C
-  D

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness, or reliability of the information.

FIGURE 3 - SOILS
LAKE CITY WELLHEAD PROTECTION PLAN

Map ID	Soil Type
322TD2	Plumcreek silt loam, 20 to 45 percent slopes
1010	Pits, quarry
Az	Arenzville silt loam, 0 to 3 percent slopes, occasionally flooded
BbA	Bixby loam, 0 to 2 percent slopes
BbB	Bixby loam, 2 to 6 percent slopes
BfE	Boone loamy fine sand, 18 to 35 percent slopes
BhC	Boone and Chelsea loamy fine sands, 6 to 12 percent slopes
BhD	Boone and Chelsea loamy fine sands, 12 to 18 percent slopes
BkA	Burkhardt gravelly sandy loam, 0 to 2 percent slopes
BkB	Burkhardt gravelly sandy loam, 2 to 6 percent slopes
BrA	Burkhardt loam, 0 to 2 percent slopes
BrB	Burkhardt loam, 2 to 6 percent slopes
BtA	Burkhardt sandy loam, 0 to 2 percent slopes
BtB	Burkhardt sandy loam, 2 to 6 percent slopes
BtC2	Burkhardt sandy loam, 6 to 12 percent slopes, moderately eroded
CaB	Chaseburg fine sandy loam, 2 to 6 percent slopes
ChA	Chaseburg silt loam, moderately well drained, 0 to 2 percent slopes
ChB	Chaseburg silt loam, moderately well drained, 2 to 6 percent slopes
DhA	Downs silt loam, 0 to 2 percent slopes
DnB	Dubuque silt loam, 2 to 6 percent slopes
DnC2	Dubuque silt loam, 6 to 12 percent slopes, moderately eroded
DnD2	Dubuque silt loam, 12 to 18 percent slopes, moderately eroded
DnE	Dubuque silt loam, 18 to 25 percent slopes
DnF	Dubuque silt loam, 25 to 35 percent slopes
DrB	Dubuque silt loam, shallow, 2 to 6 percent slopes
DrC2	Dubuque silt loam, shallow, 6 to 12 percent slopes, moderately eroded
DrD2	Dubuque silt loam, shallow, 12 to 18 percent slopes, moderately eroded
DrE	Dubuque silt loam, shallow, 18 to 25 percent slopes
DrF	Dubuque silt loam, shallow, 25 to 35 percent slopes
FaA	Fayette silt loam, uplands, 0 to 2 percent slopes
FaE2	Fayette silt loam, 18 to 35 percent slopes, moderately eroded
FbB2	Festina silt loam, 1 to 6 percent slopes, moderately eroded
FbC2	Festina silt loam, 6 to 12 percent slopes, moderately eroded
GaB	Gale silt loam, 2 to 6 percent slopes, moderately eroded
GaC2	Gale silt loam, 6 to 12 percent slopes, moderately eroded
GaD2	Gale silt loam, 12 to 20 percent slopes, moderately eroded
GhC2	Gale-Hixton complex, shallow, 6 to 12 percent slopes, moderately eroded
GhD2	Gale-Hixton complex, shallow, 12 to 18 percent slopes, moderately eroded
GhE	Gale-Hixton complex, shallow, 18 to 25 percent slopes
GP	Pits, gravel-Udipsammments complex
HfB	Hixton fine sandy loam, 2 to 6 percent slopes
HfC2	Hixton fine sandy loam, 6 to 12 percent slopes, moderately eroded
HfD2	Hixton fine sandy loam, 12 to 18 percent slopes, moderately eroded
HfE	Hixton fine sandy loam, 18 to 35 percent slopes
Hu	Huntsville silt loam
MbB2	Medary silt loam, 0 to 6 percent slopes, moderately eroded
MdA	Meridian sandy loam, 0 to 2 percent slopes
MdB	Meridian sandy loam, 2 to 6 percent slopes
MdC2	Meridian sandy loam, 6 to 12 percent slopes, moderately eroded
Mn	Minneiska silt loam
MuA	Muscatine silt loam, 0 to 2 percent slopes
MuB	Muscatine silt loam, 2 to 6 percent slopes
N514B	Joy-Ossian, occasionally flooded, complex, 1 to 5 percent slopes
N517A	Oak Center-Mt. Carroll complex, 0 to 2 percent slopes
N518B	Lindstrom silt loam, 2 to 6 percent slopes
N518C2	Lindstrom silt loam, 6 to 12 percent slopes, moderately eroded
N518D2	Lindstrom silt loam, 12 to 18 percent slopes, moderately eroded

Map ID	Soil Type
N520B	Hersey-Oak Center-Mt. Carroll complex, 2 to 6 percent slopes
N520C2	Hersey-Oak Center-Mt. Carroll complex, 6 to 12 percent slopes, moderately eroded
N521B	Mt. Carroll silt loam, 2 to 6 percent slopes, moderately eroded
N521C2	Mt. Carroll silt loam, 6 to 12 percent slopes, moderately eroded
N521D2	Mt. Carroll silt loam, 12 to 20 percent slopes, moderately eroded
N526F	Gale-Oak Center complex, 18 to 45 percent slopes
N578B	Barremills silt loam, drainageway, 1 to 5 percent slopes, occasionally flooded
N584E	Downs silt loam, valleys, 18 to 25 percent slopes
N585B	Mt. Carroll-Hersey complex, 2 to 6 percent slopes
N585C2	Mt. Carroll-Hersey complex, 6 to 12 percent slopes, moderately eroded
N585D2	Mt. Carroll-Hersey complex, 12 to 18 percent slopes, moderately eroded
N590B	Tama silt loam, valleys, driftless, 2 to 6 percent slopes
N590C2	Tama silt loam, valleys, driftless, 6 to 12 percent slopes, moderately eroded
N590D2	Tama silt loam, valleys, driftless, 12 to 18 percent slopes, moderately eroded
N606B	Richwood silt loam, 1 to 6 percent slopes
N619A	Kennebec-Lawson, channeled, complex, 0 to 3 percent slopes, flooded
N621B	Volney channery silt loam, 2 to 12 percent slopes, occasionally flooded
N639F	Frontenac-Lacrescent complex, 20 to 45 percent slopes, rocky
N639G	Frontenac-Lacrescent complex, 30 to 70 percent slopes
N640G	Lacrescent, flaggy-Frontenac-Rock outcrop complex, 45 to 90 percent slopes
N644A	Scotah loamy fine sand, 0 to 3 percent slopes, occasionally flooded
N646A	Ceresco-Spillville complex, 0 to 3 percent slopes, frequently flooded
N647A	Dunnbot-Scotah complex, 0 to 3 percent slopes, frequently flooded
N650F	Downs-Oak Center complex, 25 to 35 percent slopes
N660A	Minneiska sandy loam, 0 to 2 percent slopes, occasionally flooded
N665A	Rawles silt loam, 0 to 2 percent slopes, occasionally flooded
N670A	Dockery silt loam, 0 to 2 percent slopes, occasionally flooded
N1155F	Brodale-Bellechester complex, 30 to 60 percent slopes, rocky
N1155G	Brodale-Bellechester-Rock outcrop complex, 60 to 90 percent slopes
PaA	Plainfield fine sand, 0 to 2 percent slopes
PaB	Plainfield fine sand, 2 to 6 percent slopes
RaD2	Racine silt loam, 12 to 18 percent slopes, moderately eroded
ReB	Renova silt loam, 2 to 6 percent slopes
ReC2	Renova silt loam, 6 to 12 percent slopes, moderately eroded
ReD2	Renova silt loam, 12 to 18 percent slopes, moderately eroded
ReE	Renova silt loam, 18 to 25 percent slopes
ReF	Renova silt loam, 25 to 35 percent slopes
ThA	Tell silt loam, 0 to 2 percent slopes
ThB	Tell silt loam, 2 to 6 percent slopes
Ts	Plainfield sand, river valley, 15 to 60 percent slopes
W	Water
WaA	Waukegan silt loam, 0 to 2 percent slopes
WaB	Waukegan silt loam, 2 to 6 percent slopes
WhC2	Whalan silt loam, 6 to 12 percent slopes, moderately eroded
WhD2	Whalan silt loam, 12 to 18 percent slopes, moderately eroded
WsC2	Whalan silt loam, shallow, 6 to 12 percent slopes, moderately eroded
WsD2	Whalan silt loam, shallow, 12 to 18 percent slopes, moderately eroded
WsE	Whalan silt loam, 18 to 25 percent slopes
WsF	Whalan silt loam, 25 to 35 percent slopes
WvC2	Wykoff gravelly loam, 6 to 12 percent slopes, moderately eroded
WvD2	Wykoff gravelly loam, 12 to 18 percent slopes, moderately eroded
WvE	Wykoff gravelly loam, 18 to 35 percent slopes
ZgA	Zwingle silt loam, 0 to 2 percent slopes
ZgB	Zwingle silt loam, 2 to 6 percent slopes



LEGEND

- W PUBLIC WATER SUPPLY WELLS
- ⊕ EMERGENCY RESPONSE AREA
- ⊕ WELLHEAD PROTECTION AREA
- ⊕ DRINKING WATER SUPPLY MANAGEMENT AREA
- PUBLIC WATERS
- PUBLIC WATERWAYS

BASE MAPPING

- PARCELS
- MUNICIPAL LIMITS

FEMA FLOOD ZONE

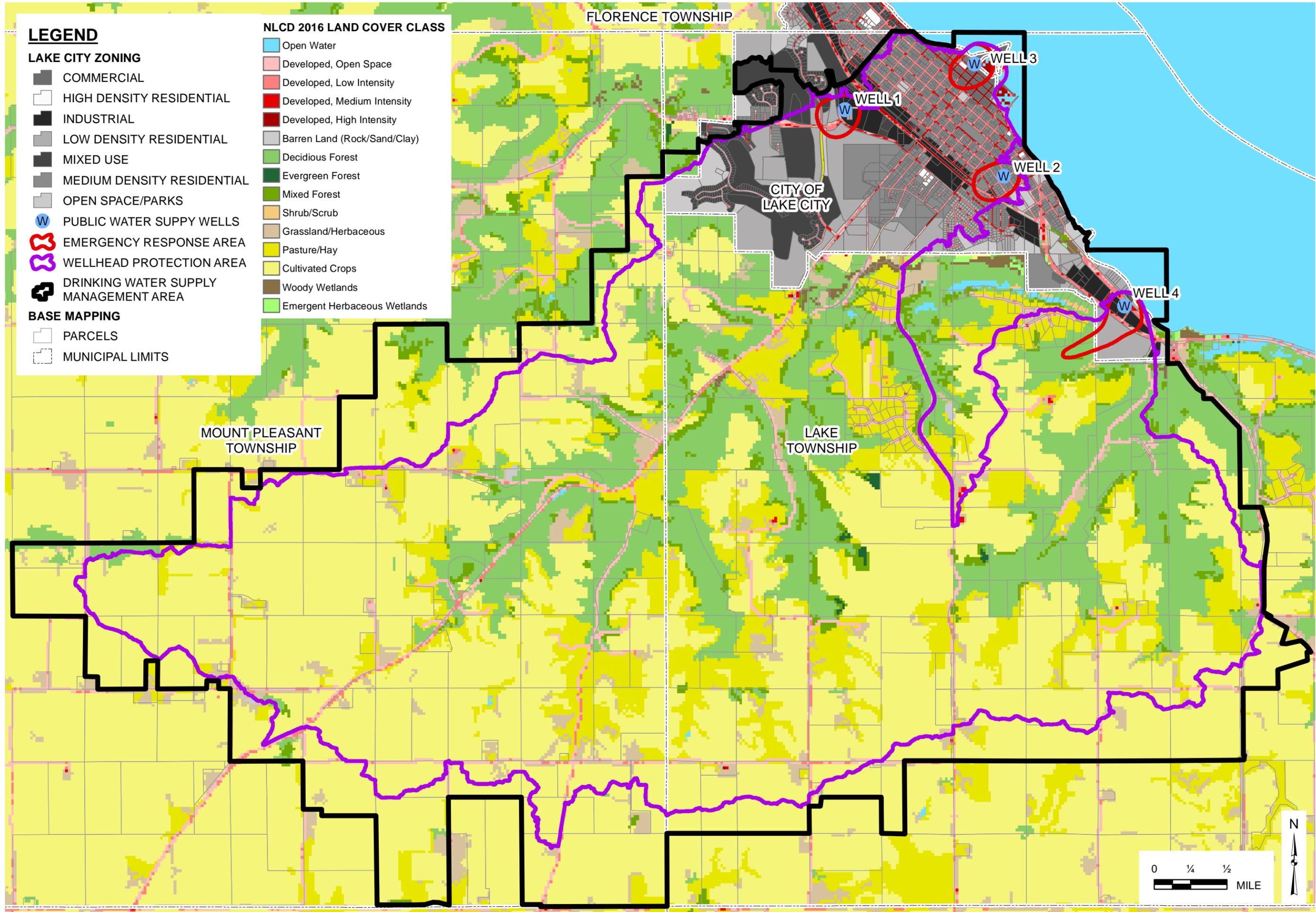
- 100 YEAR FLOOD
- 500 YEAR FLOOD

NATIONAL WETLANDS INVENTORY

- Aquatic Bed
- Emergent Vegetation
- Forested
- Streambed (Intermittent)
- Scrub-Scrub Forest
- Unconsolidated Bottom (Basins & Channels)
- Unconsolidated Shore (Banks & Sandbars)

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness, or reliability of the information.

FIGURE 4 - WATER RESOURCES
LAKE CITY WELLHEAD PROTECTION PLAN



LEGEND

LAKE CITY ZONING

- COMMERCIAL
- HIGH DENSITY RESIDENTIAL
- INDUSTRIAL
- LOW DENSITY RESIDENTIAL
- MIXED USE
- MEDIUM DENSITY RESIDENTIAL
- OPEN SPACE/PARKS
- PUBLIC WATER SUPPLY WELLS
- EMERGENCY RESPONSE AREA
- WELLHEAD PROTECTION AREA
- DRINKING WATER SUPPLY MANAGEMENT AREA

BASE MAPPING

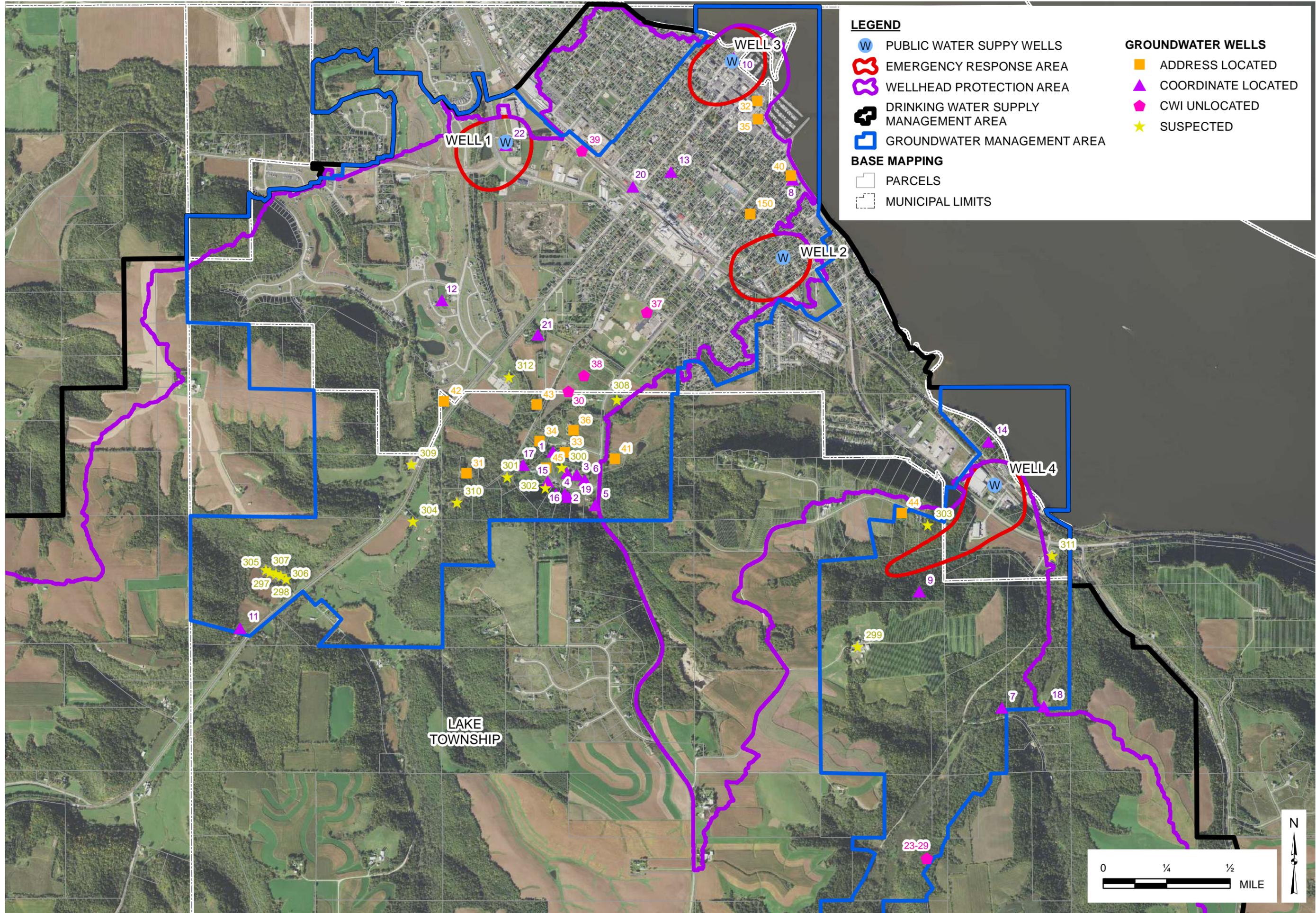
- PARCELS
- MUNICIPAL LIMITS

NLCD 2016 LAND COVER CLASS

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land (Rock/Sand/Clay)
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness or reliability of the information.

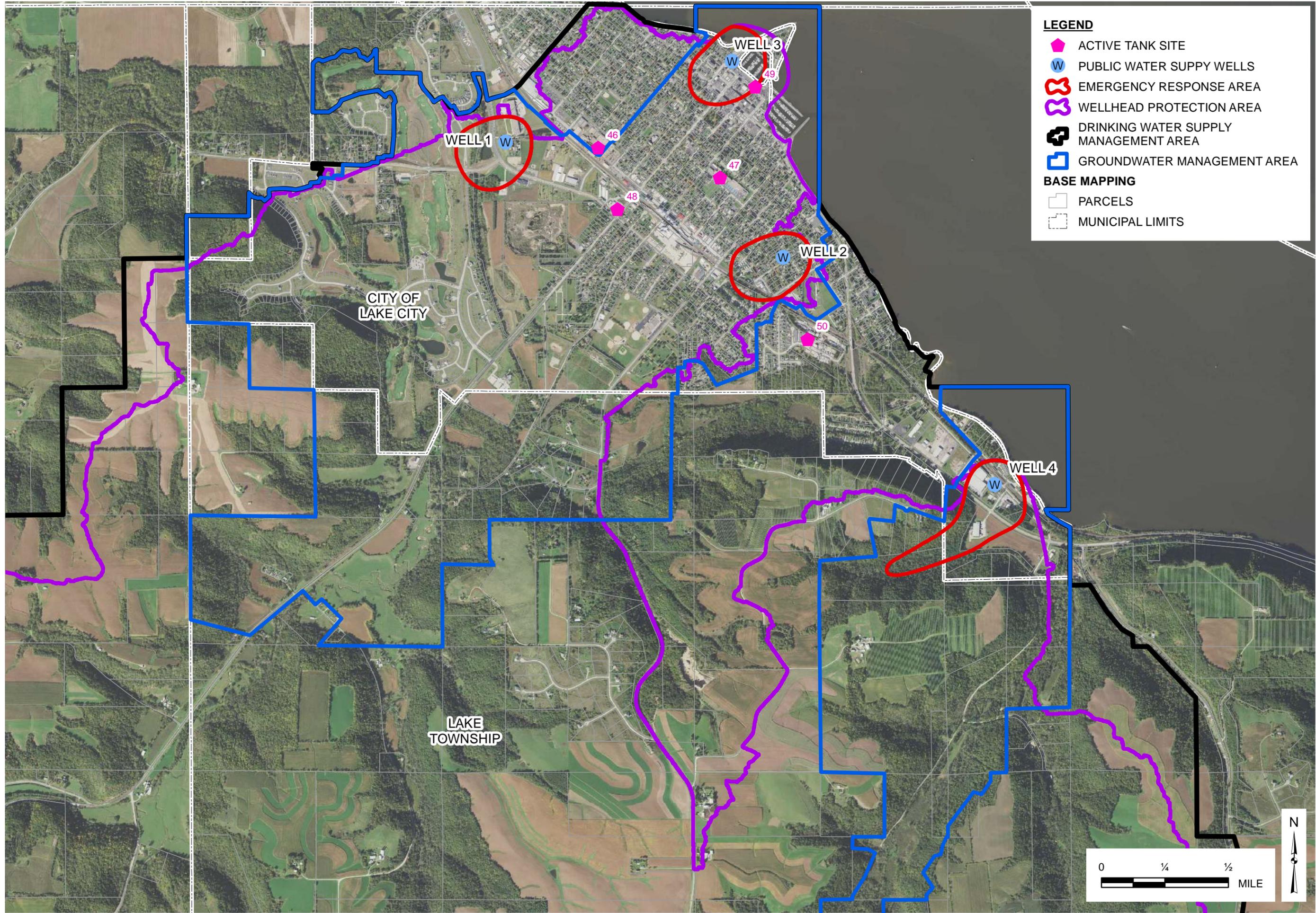
FIGURE 5 - LAND COVER MAP
LAKE CITY WELLHEAD PROTECTION PLAN



The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness, or reliability of the information.

VA:1938(active)\193803357\GIS\Projects\Part 2 - Fig 7 - Wells.mxd

FIGURE 6 - WELLS WITHIN GROUNDWATER DWSMA
LAKE CITY WELLHEAD PROTECTION PLAN



LEGEND

- ◆ ACTIVE TANK SITE
- W PUBLIC WATER SUPPLY WELLS
- ⊕ EMERGENCY RESPONSE AREA
- ⊕ WELLHEAD PROTECTION AREA
- ⊕ DRINKING WATER SUPPLY MANAGEMENT AREA
- ⊕ GROUNDWATER MANAGEMENT AREA

BASE MAPPING

- PARCELS
- MUNICIPAL LIMITS

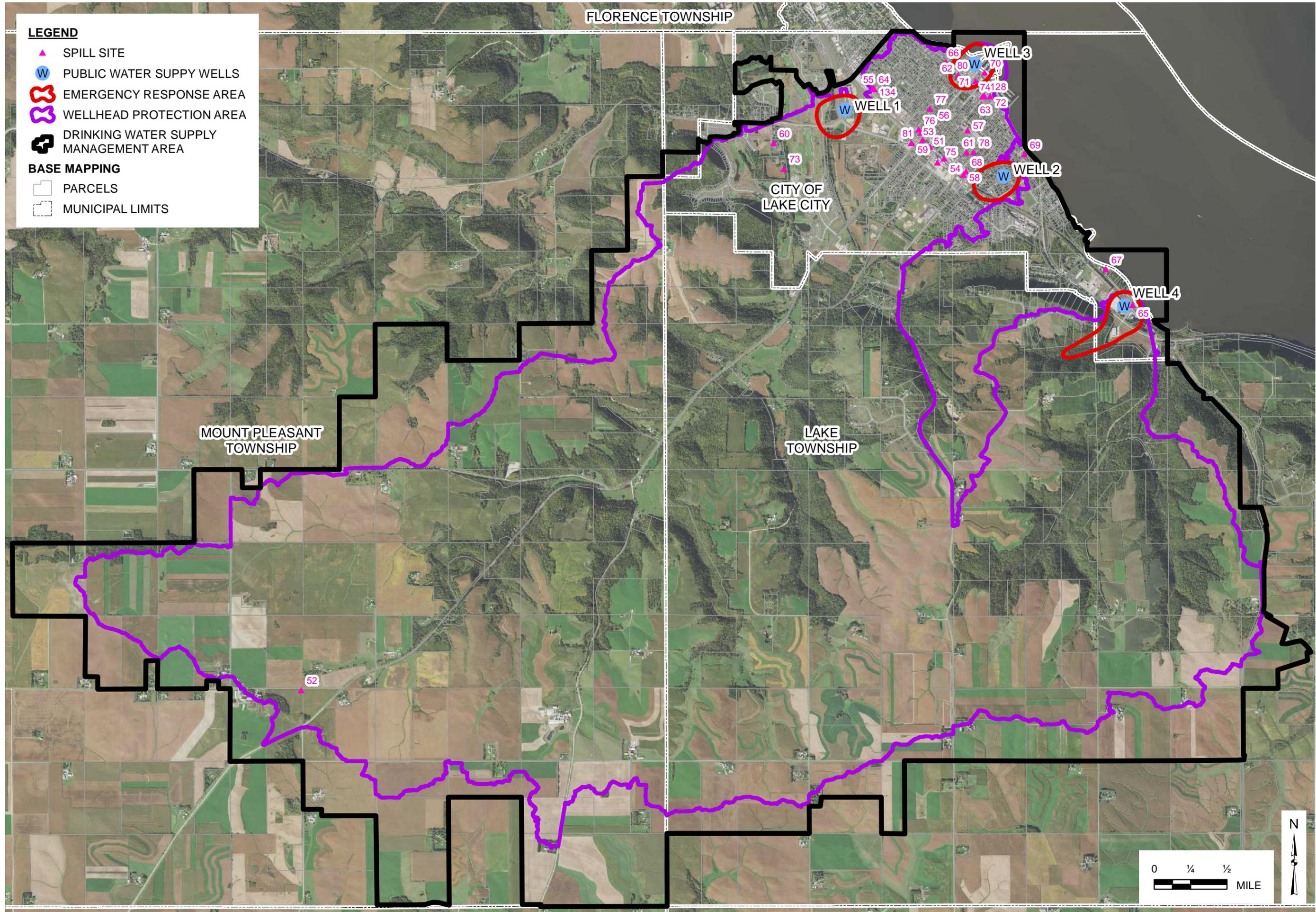
The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness, or reliability of the information.

V:\1938\active\193803357\GIS\Projects\Part 2 - Fig 8 - Tanks.mxd

FIGURE 7 - TANKS
LAKE CITY WELLHEAD PROTECTION PLAN

December 2019





LEGEND

- ▲ SPILL SITE
- W PUBLIC WATER SUPPLY WELLS
- EMERGENCY RESPONSE AREA
- WELLHEAD PROTECTION AREA
- DRINKING WATER SUPPLY MANAGEMENT AREA

BASE MAPPING

- PARCELS
- MUNICIPAL LIMITS

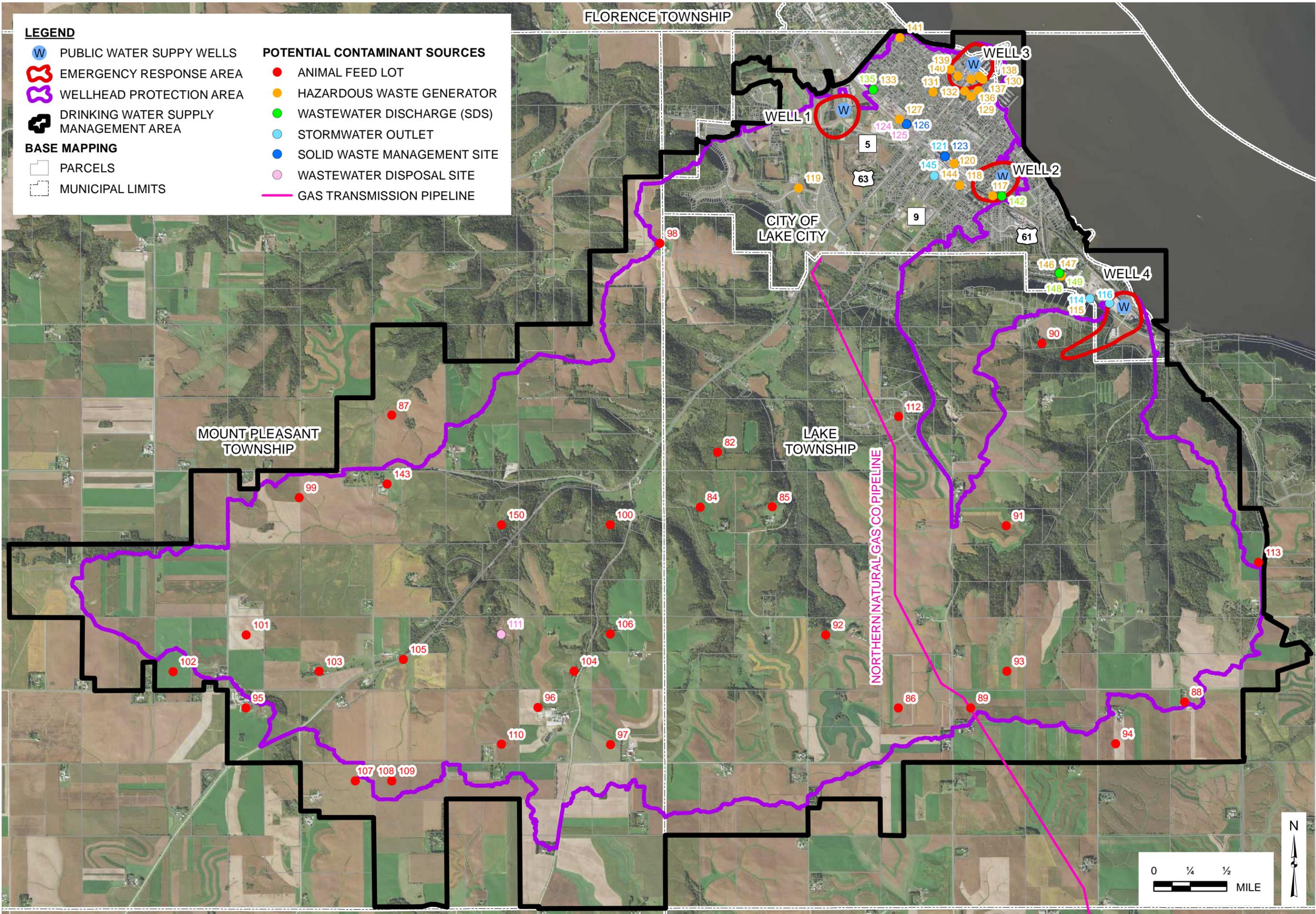
The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness, or reliability of the information.

V:\1938\active\193803357\GIS\Projects\Part 2 - Fig 9 - Spills.mxd

FIGURE 8 - SPILLS

LAKE CITY WELLHEAD PROTECTION PLAN

October 2019



LEGEND

- PUBLIC WATER SUPPLY WELLS
- EMERGENCY RESPONSE AREA
- WELLHEAD PROTECTION AREA
- DRINKING WATER SUPPLY MANAGEMENT AREA
- PARCELS
- MUNICIPAL LIMITS

POTENTIAL CONTAMINANT SOURCES

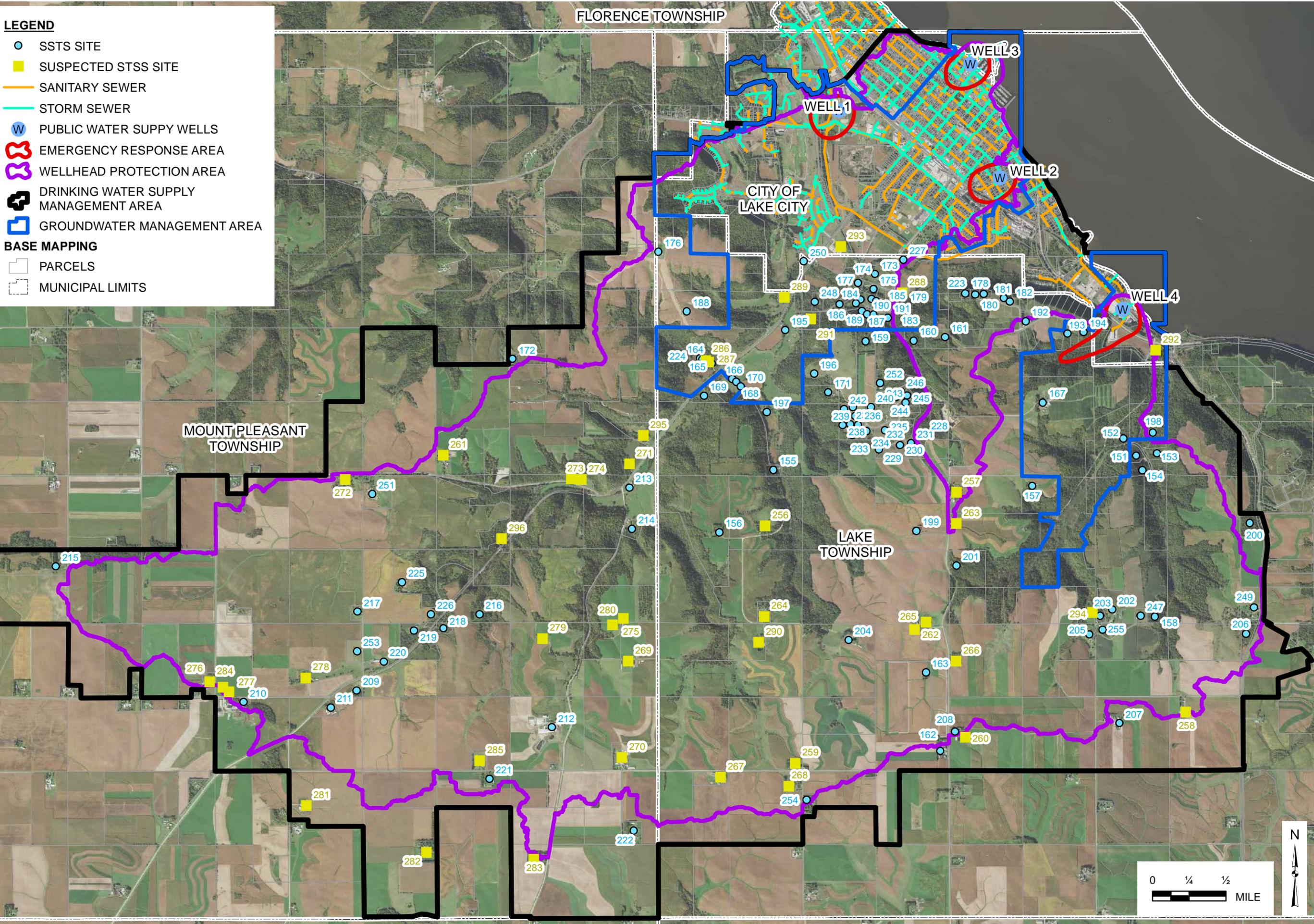
- ANIMAL FEED LOT
- HAZARDOUS WASTE GENERATOR
- WASTEWATER DISCHARGE (SDS)
- STORMWATER OUTLET
- SOLID WASTE MANAGEMENT SITE
- WASTEWATER DISPOSAL SITE
- GAS TRANSMISSION PIPELINE

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness or reliability of the information.

V:\1938\active\193803357\GIS\Projects\Part 2 - Fig 10 - PCS.mxd

FIGURE 9 - OTHER POTENTIAL CONTAMINATION SOURCES
LAKE CITY WELLHEAD PROTECTION PLAN

December 2019



The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representation or warranty, express or implied, as to accuracy, completeness or reliability of the information, or to the use of such information.

FIGURE 11 - STORM SEWERS, SANITARY SEWERS & SSTS

LAKE CITY WELLHEAD PROTECTION PLAN

December 2019

APPENDIX A

POTENTIAL CONTAMINANT SOURCE INVENTORY DATA

TABLE A-1: POTENTIAL CONTAMINATION SOURCE INVENTORY, LAKE CITY WELLHEAD PROTECTION PLAN

OBJECT ID	MAP ID	PARCEL ID	PARCEL NAME	ADDRESS	CITY	ZIP	PCSI CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	SITE DESCRIPTION	DWSMA ID	DWSMA TYPE	DWSMA VULNERABILITY	GROUNDWATER VULNERABILITY
289	1	080026500	EGGENBERGER, MICHAEL	30525 MILLER CREEK CT	LAKE CITY	55041	WEL	ACTIVE		540321	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
290	2	080025200	SCHAAL, TODD & MELISSA	30501 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		624715	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
291	3	080026100	BREMER, DAVID	30438 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		558782	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
292	4	080025300	FIEDLER, DEAN & TAMMY	30525 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		604980	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
293	5	080025000	RYAN, TERRY	30421 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		617034	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
294	6	080026100	BREMER, DAVE	30438 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		524252	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
295	7	080006500	MEYERS FAMILY TRUST	28702 712TH ST	LAKE CITY	55041	WEL	ACTIVE		552600	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
296	8	220077415	HARBORSIDE CLUB INC	700 S LAKESHORE DR, UNIT 401	LAKE CITY	55041	WEL	INACTIVE		174768	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
297	9	080006900	ROTH, CAROLYN	332 FISHERMANS DR NW	LAKE CITY	55041	WEL	ACTIVE		634271	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
298	10	0	LAKE CITY OLD 3 DNR OB 79000		LAKE CITY	55041	WEL	INACTIVE		222329	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
299	11	080009000	DIEPENBROCK, JULIE	202 S 7TH ST	LAKE CITY	55041	WEL	ACTIVE		443882	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
300	12	220246500	JEWEL LLC	21750 CEDAR AVE	LAKE CITY	55041	WEL	ACTIVE		160844	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
301	13	220099900	GLOMSKI, DAVID & AMY	116 6TH ST	LAKE CITY	55041	WEL	ACTIVE		170772	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
302	14	220173500	NSP 1-E		LAKE CITY	55041	WEL	INACTIVE		218889	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
303	15	080025600	SANDERS, EDWARD	30558 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		604970	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
304	16	080025200	SCHAAL, TODD & MELISSA	30501 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		624737	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
305	17	080025700	ANDERSON, TIMOTHY & LORI	72290 W MARION ST	LAKE CITY	55041	WEL	ACTIVE		540353	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
306	18	080006300	EGGENBURGER, RANDALL	71258 285TH AVE	LAKE CITY	55041	WEL	ACTIVE		530997	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
307	19	080026000	OLSON, BOYD & JANICE	30508 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		624721	1	COORDINATE LOCATED WELL	344	GW	HIGH	LOW
308	20	220006900	RAILHOUSE GRILL	800 LYON AVE	LAKE CITY	55041	WEL	ACTIVE		218884	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
309	21	220009500	SMITH, BENJAMIN & JODY	104 ORCHARD LANE	LAKE CITY	55041	WEL	ACTIVE		135615	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
310	22	220274300	WINONA STATE UNIVERSITY	JEWELL AV	LAKE CITY	55041	WEL	ACTIVE		634216	1	COORDINATE LOCATED WELL	344	GW	HIGH	HIGH
311	23	080011100	GORDON HINRICHS CON		LAKE CITY	55041	WEL	ACTIVE		121090	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
312	24	080011100	KIZER CONSTRUCTION		LAKE CITY	55041	WEL	ACTIVE		145941	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
313	25	080011100	BAER, BRIAN & DAWN	612 7TH STREET N	LAKE CITY	55041	WEL	ACTIVE		121006	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
314	26	080011100	BRANDT, DON	MAPLE WOOD PARK	LAKE CITY	55041	WEL	ACTIVE		186009	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
315	27	080011100	WIPPERLING, HAROLD		LAKE CITY	55041	WEL	ACTIVE		186007	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
316	28	080011100	HOYER BROS.WELL CO.		LAKE CITY	55041	WEL	ACTIVE		170783	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
317	29	080011100	FABER, DON	BOX 111A	LAKE CITY	55041	WEL	ACTIVE		170891	1	CWI UNLOCATED WELL	344	GW	HIGH	LOW
318	30	220011900	ERICKSON, NORMAN & MARY	520 S OAK ST	LAKE CITY	55041	WEL	ACTIVE		232463	1	CWI UNLOCATED WELL	344	GW	HIGH	HIGH
319	31	080001718	STEVENSON, TOM	72163 W MARION ST	LAKE CITY	55041	WEL	ACTIVE		648170	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
320	32	220025200	LAKE CITY FEDERAL BANK	201 MARION ST E	LAKE CITY	55041	WEL	ACTIVE		630045	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
321	33	080026400	MCCARTHY, MALACHY AND KRISTEN	30511 MILLER CREEK CT	LAKE CITY	55041	WEL	ACTIVE		563649	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
322	34	080026600	WEBSTER, KEVIN	72364 W MARION ST	LAKE CITY	55041	WEL	ACTIVE		685222	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
323	35	220026200	MW-4	303 LAKESHORE DR S	LAKE CITY	55041	WEL	ACTIVE		599609	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
324	36	080002606	BREMMER,KIRK	30460 MILLER CREEK CT	LAKE CITY	55041	WEL	ACTIVE		658974	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
325	37	220010600	IND SCHOOL DISTRICT 813	300 S GARDEN ST	LAKE CITY	55041	WEL	ACTIVE		686622	1	CWI UNLOCATED WELL	344	GW	HIGH	HIGH
326	38	220011900	DW	1400 LAKEWOOD AV W	LAKE CITY	55041	WEL	ACTIVE		553555	1	CWI UNLOCATED WELL	344	GW	HIGH	HIGH
327	39	220800100	MW-4	800 JEFFERSON	LAKE CITY	55041	WEL	ACTIVE		574422	1	CWI UNLOCATED WELL	344	GW	HIGH	HIGH
328	40	0	DW	US 61 & LAKEWOOD AVE LM	LAKE CITY	55041	WEL	ACTIVE		553553	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
329	41	080002906	STEGEN, ANTON & SARAH	72230 LAKEWOOD AVENUE	LAKE CITY	55041	WEL	ACTIVE		733098	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
330	42	080001706	HERZIG, STEVE AND DEB	72437 HIGHWAY 63	LAKE CITY	55041	WEL	ACTIVE		780067	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
331	43	080001703	KASICK, CHARELES AND ROBIN	72439 MARION ST W	LAKE CITY	55041	WEL	ACTIVE		799813	1	ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
332	44	080028600	STAFKI, ROBERT AND SHARON	29145 720TH ST	LAKE CITY	55041	WEL	ACTIVE		780063	1	ADDRESS LOCATED WELL	344	GW	HIGH	LOW
333	45	080025800	BROYLES, MARK	30552 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	ACTIVE		812665	1	ADDRESS LOCATED WELL	344	GW	HIGH	LOW
339	46	220105800	Federal-Mogul Powertrain	520 N 8th St	LAKE CITY	55041	AST	ACTIVE	UNK	TS0124908	9	ABOVE GROUND STORAGE TANK	344	SW	HIGH	
340	47	220060000	ISD 813 Lake City Schools Lincoln HS	300 Garden St	LAKE CITY	55041	UST	ACTIVE	F000	TS0018713	1	UNDERGROUND STORAGE TANK	344	GW	HIGH	HIGH
341	48	220274000	Kwik Trip 844	994 W Lyon Ave	LAKE CITY	55041	UST	ACTIVE	F000	TS0009958	8	UNDERGROUND STORAGE TANK	344	GW	HIGH	HIGH
342	49	220018300	Lake City Municipal Marina	201 S Franklin St	LAKE CITY	55041	UST	ACTIVE	F000	TS0012308	2	UNDERGROUND STORAGE TANK	344	GW	HIGH	HIGH
343	50	220173300	J&B Pallets	1215 S 10th St	LAKE CITY	55041	AST	ACTIVE	UNK	TS0125890	2	ABOVE GROUND STORAGE TANK	344	SW	HIGH	
344	51	220135000	INDEPENDENT GRAIN & FEED CO	801 LYON AVE	LAKE CITY	55041	SPL	INACTIVE		93-0275	1	SPILL SITE	344	SW	HIGH	HIGH
345	52	110020400	KEITH BREMER	UKNOWN	LAKE CITY	55041	SPL	INACTIVE		96-1381	1	SPILL SITE	344	SW	HIGH	
346	53	220135000	801 LYON AVE	801 LYON AVE	LAKE CITY	55041	SPL	INACTIVE		FY86I027	1	SPILL SITE	344	SW	HIGH	HIGH
347	54	220007000	EIGHTH & DWELLE	EIGHTH & DWELLE	LAKE CITY	55041	SPL	INACTIVE		FY87I078	1	SPILL SITE	344	SW	HIGH	HIGH
348	55	220133103	Hearth & Home Technologies of Lake City	800 Jefferson St	LAKE CITY	55041	VIC	INACTIVE		VP1600	1	VOLUNTARY INVESTIGATION CLEANUP SITE	344	SW	HIGH	
349	56	220102400	Miller Repair	720 W Lyon Ave	LAKE CITY	55041	SPL	INACTIVE		LS0012140	1	SPILL SITE	344	SW	HIGH	HIGH
350	57	220060000	ISD 813 Lake City Schools Lincoln HS	300 Garden St	LAKE CITY	55041	SPL	INACTIVE		LS0006392	1	SPILL SITE	344	SW	HIGH	HIGH

TABLE A-1: POTENTIAL CONTAMINATION SOURCE INVENTORY, LAKE CITY WELLHEAD PROTECTION PLAN

OBJECT ID	MAP ID	PARCEL ID	PARCEL NAME	ADDRESS	CITY	ZIP	PCSI CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	SITE DESCRIPTION	DWSMA ID	DWSMA TYPE	DWSMA VULNERABILITY	GROUNDWATER VULNERABILITY
351	58	220000500	Ag Partners Coop Facility	602 S 8th St	LAKE CITY	55041	SPL	INACTIVE		LS0015102	1	SPILL SITE	344	SW	HIGH	HIGH
352	59	220274000	Kwik Trip 844	994 W Lyon Ave	LAKE CITY	55041	SPL	INACTIVE		LS0006211	1	SPILL SITE	344	SW	HIGH	HIGH
353	60	220164000	Jewell Nurseries	Highway 63 & County Road 5	LAKE CITY	55041	SPL	INACTIVE		LS0010572	1	SPILL SITE	344	SW	HIGH	LOW
354	61	220094200	Lake City Dump I	See location description	LAKE CITY	55041	SAS	INACTIVE		SA0008865	1	STATE ASSESSMENT SITE	344	SW	HIGH	HIGH
355	62	220035600	Big Bear Get N Go	211 N Lakeshore Dr	LAKE CITY	55041	SPL	INACTIVE		LS0018071	1	SPILL SITE	344	SW	HIGH	HIGH
356	63	0	Lakeshore and Marion Property	S Lakeshore Dr & W Marion St	LAKE CITY	55041	BMS	INACTIVE		PB3476	1	BROWNFIELD SITE	344	SW	HIGH	HIGH
357	64	220133103	Hearth & Home Technologies Inc	800 W Jefferson Rd	LAKE CITY	55041	SAS	INACTIVE		SA0001098	1	STATE ASSESSMENT SITE	344	SW	HIGH	
358	65	220016403	Mndot Truck Station #91206	2102 S Oak St	LAKE CITY	55041	SPL	INACTIVE		LS0001434	1	SPILL SITE	344	SW	HIGH	HIGH
359	66	0	Bangs Southside Mobil	402 Lake Shore Dr	LAKE CITY	55041	SPL	INACTIVE		LS0009129	1	SPILL SITE	344	SW	HIGH	
360	67	0	Mn Dnr	1801 S Oak	LAKE CITY	55041	SPL	INACTIVE		LS0004243	1	SPILL SITE	344	SW	HIGH	HIGH
361	68	220093403	Lake City Park and Rec Dept	601 S 8th St	LAKE CITY	55041	SPL	INACTIVE		LS0017011	1	SPILL SITE	344	SW	HIGH	HIGH
362	69	220229400	Lake City Hospital	904 Lakeshore Dr S	LAKE CITY	55041	SPL	INACTIVE		LS0013487	1	SPILL SITE	344	SW	HIGH	HIGH
363	70	220018800	Lake City Marina	201 S Franklin St	LAKE CITY	55041	SPL	INACTIVE		LS0001292	1	SPILL SITE	344	SW	HIGH	HIGH
364	71	0	Nichols Company Development	See location description	LAKE CITY	55041	VIC	INACTIVE		VP19470	1	VOLUNTARY INVESTIGATION CLEANUP SITE	344	SW	HIGH	HIGH
365	72	220025900	Severson Food Mart	303 S Lake Shore Dr	LAKE CITY	55041	SPL	INACTIVE		LS0001172	1	SPILL SITE	344	SW	HIGH	HIGH
366	73	220008000	Jewell Nurseries	See location description	LAKE CITY	55041	VIC	INACTIVE		VP7840	1	VOLUNTARY INVESTIGATION CLEANUP SITE	344	SW	HIGH	LOW
367	74	0	Elgin-millville State Bank Prop	224 S Shore Dr	LAKE CITY	55041	SPL	INACTIVE		LS0002772	1	SPILL SITE	344	SW	HIGH	HIGH
368	75	220005500	Pillsbury	Marion St	LAKE CITY	55041	SPL	INACTIVE		LS0003033	1	SPILL SITE	344	SW	HIGH	HIGH
369	76	220102500	Wabasha Co Lake City Shop	8th Ave & N Hwy 63	LAKE CITY	55041	SPL	INACTIVE		LS0001983	1	SPILL SITE	344	SW	HIGH	HIGH
370	77	220068100	Saint Johns Lutheran Church	Chestnut St	LAKE CITY	55041	SPL	INACTIVE		LS0001760	1	SPILL SITE	344	SW	HIGH	HIGH
371	78	220073800	Bethany Luthern Church	6th Ave & Irvine St	LAKE CITY	55041	SPL	INACTIVE		LS0004128	1	SPILL SITE	344	SW	HIGH	HIGH
372	79	220025900	Severson Food Mart	303 S Lake Shore Dr	LAKE CITY	55041	SPL	INACTIVE		LS0008206	1	SPILL SITE	344	SW	HIGH	HIGH
373	80	220035600	Big Bear Get N Go	211 N Lakeshore Dr	LAKE CITY	55041	BMS	INACTIVE		PB4328	1	BROWNFIELD SITE	344	SW	HIGH	HIGH
374	81	220274000	Kwik Trip 844	994 W Lyon Ave	LAKE CITY	55041	SPL	INACTIVE		LS0018582	1	SPILL SITE	344	SW	HIGH	HIGH
375	82	080009100	Mervil Schuster Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86644	1	ANIMAL FEEDLOT	344	SW	HIGH	
377	83	080009800	Byron Wohlers Farm - Sec 19	31554 706th St	LAKE CITY	55041	AFL	ACTIVE		157-95462	1	ANIMAL FEEDLOT	344	SW	HIGH	
378	84	080009700	Byron Wohlers Farm	70675 310th Ave	LAKE CITY	55041	AFL	ACTIVE		157-86524	1	ANIMAL FEEDLOT	344	SW	HIGH	
379	85	080018100	Paul Goihl Farm	RR 3 Box 178	LAKE CITY	55041	AFL	ACTIVE		157-86946	1	ANIMAL FEEDLOT	344	SW	HIGH	
380	86	110012300	Herbert Moyer Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86757	1	ANIMAL FEEDLOT	344	SW	HIGH	
381	87	080017300	Rob & Richard Funke Farm	28387 695th St	LAKE CITY	55041	AFL	ACTIVE		157-94043	1	ANIMAL FEEDLOT	344	SW	HIGH	
382	88	080017800	James Goihl Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86949	1	ANIMAL FEEDLOT	344	SW	HIGH	
383	89	080029000	Richard Bremer Farm	RR 3 Box 185	LAKE CITY	55041	AFL	ACTIVE		157-87055	1	ANIMAL FEEDLOT	344	SW	HIGH	
384	90	080011500	John Brinkman Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-87053	1	ANIMAL FEEDLOT	344	SW	HIGH	
385	91	080018200	John Moyer Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-88707	1	ANIMAL FEEDLOT	344	SW	HIGH	
386	92	080017700	Jeff Goihl Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86948	1	ANIMAL FEEDLOT	344	SW	HIGH	
387	93	080017403	Ralph & Arnold Pruterholm Farms Pruter	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-94044	1	ANIMAL FEEDLOT	344	SW	HIGH	
388	94	110020400	Paul Ahlers Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-87087	1	ANIMAL FEEDLOT	344	SW	HIGH	
389	95	110019400	Klein's Cow Palace LLC	69363 County Road 2	LAKE CITY	55041	AFL	ACTIVE		157-95454	1	ANIMAL FEEDLOT	344	SW	HIGH	
390	96	110019200	Dean Klein Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86853	1	ANIMAL FEEDLOT	344	SW	HIGH	
391	97	110010400	Gilbert Valley Beefalo Ranch	31998 728th St	LAKE CITY	55041	AFL	ACTIVE		157-94034	1	ANIMAL FEEDLOT	344	SW	HIGH	
392	98	110016600	Keith Bremer Farm	34901 County Road 78	LAKE CITY	55041	AFL	ACTIVE		157-87057	1	ANIMAL FEEDLOT	344	SW	HIGH	
393	99	110018100	Gerald Wohlers Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86523	1	ANIMAL FEEDLOT	344	SW	HIGH	
394	100	110020300	Frederick Nibbe Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86745	1	ANIMAL FEEDLOT	344	SW	HIGH	
395	101	110020703	Sapa Ska Farm Inc.	RR 1 Box 54	LAKE CITY	55041	AFL	ACTIVE		157-100323	1	ANIMAL FEEDLOT	344	SW	HIGH	
396	102	110020200	Hoops Hill Top Angus	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-88672	1	ANIMAL FEEDLOT	344	SW	HIGH	
397	103	110019300	Dean Klein Farm - Sec 25 (2)	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-95453	1	ANIMAL FEEDLOT	344	SW	HIGH	
398	104	110019800	Bryan Juers Farm	69753 Highway 63	LAKE CITY	55041	AFL	ACTIVE		157-86876	1	ANIMAL FEEDLOT	344	SW	HIGH	
399	105	110019000	Donald Klein Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86852	1	ANIMAL FEEDLOT	344	SW	HIGH	
400	106	110024000	Pine Grove Farms	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86800	1	ANIMAL FEEDLOT	344	SW	HIGH	
401	107	110025006	Wayne Keeran Farm	68497 335th Ave	LAKE CITY	55041	AFL	ACTIVE		157-86870	1	ANIMAL FEEDLOT	344	SW	HIGH	
402	108	110025006	Bernard Murphy Farm	RR 3 Box 42	LAKE CITY	55041	AFL	ACTIVE		157-86751	1	ANIMAL FEEDLOT	344	SW	HIGH	
403	109	110020103	Randy Meincke Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86782	1	ANIMAL FEEDLOT	344	SW	HIGH	
404	110	110019600	Valley Craft Products Inc	100 Terrace Rd	LAKE CITY	55041	WWDS	ACTIVE		SIU000098	1	WASTEWATER DISCHARGE SITE	344	SW	HIGH	
405	111	080037600	Peter Holmstadt Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86899	1	ANIMAL FEEDLOT	344	SW	HIGH	
406	112	080013700	Mary O'Brien Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86737	1	ANIMAL FEEDLOT	344	SW	HIGH	
407	113	220016406	Valley Craft Industries	2001 S Highway 61	LAKE CITY	55041	SROUT	ACTIVE		MNRNE37YQ	1	STORMWATER OUTLET	344	SW	HIGH	

TABLE A-1: POTENTIAL CONTAMINATION SOURCE INVENTORY, LAKE CITY WELLHEAD PROTECTION PLAN

OBJECT ID	MAP ID	PARCEL ID	PARCEL NAME	ADDRESS	CITY	ZIP	PCSI CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	SITE DESCRIPTION	DWSMA ID	DWSMA TYPE	DWSMA VULNERABILITY	GROUNDWATER VULNERABILITY
408	114	220015503	Engineering Laboratory Design Inc	2021 Highway 61 S	LAKE CITY	55041	HWG	ACTIVE		MND061448718	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
409	115	220015503	Engineering Laboratory Design Inc	2021 Highway 61 S	LAKE CITY	55041	SROUT	ACTIVE		MNRNE3CFY	1	STORMWATER OUTLET	344	SW	HIGH	
410	116	220016206	Richardson Auto Body	1020 S 7th St	LAKE CITY	55041	HWG	ACTIVE		MNS000219055	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
411	117	220013100	Acrotech Inc	980 Lakewood Ave	LAKE CITY	55041	HWG	ACTIVE		MNR000059519	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
412	118	220264300	Jewel Golf Club Maintenance	1600 County Road 5	LAKE CITY	55041	HWG	ACTIVE		MNS000110742	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
413	119	220095200	Ryan Repair Inc	511 8th St S	LAKE CITY	55041	HWG	ACTIVE		MND981794985	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
414	120	220098003	Lake City Recycling/Transfer	401 S 8th St	LAKE CITY	55041	SROUT	ACTIVE		MNR053BG3	1	STORMWATER OUTLET	344	SW	HIGH	
415	121	220098003	Lake City Recycling/Transfer	401 S 8th St	LAKE CITY	55041	SROUT	ACTIVE		MNR053CQ9	1	STORMWATER OUTLET	344	SW	HIGH	
416	122	220098003	Lake City Recycling/Transfer	401 S 8th St	LAKE CITY	55041	SWMS	ACTIVE		SW-523	1	SOLID WASTE MANAGEMENT SITE	344	SW	HIGH	
417	123	220105300	Federal-Mogul Powertrain	520 N 8th St	LAKE CITY	55041	WWDS	ACTIVE		MN0001147	1	WASTEWATER DISCHARGE SITE	344	SW	HIGH	
418	124	220105300	Federal-Mogul Powertrain	520 N 8th St	LAKE CITY	55041	WWDS	ACTIVE		SIU000096	1	WASTEWATER DISCHARGE SITE	344	SW	HIGH	
419	125	220105300	Federal-Mogul Powertrain	520 N 8th St	LAKE CITY	55041	SWMS	ACTIVE		MND058410861	1	SOLID WASTE MANAGEMENT SITE	344	SW	HIGH	
420	126	220105800	Powers Construction General Repair	617 S 8th St	LAKE CITY	55041	HWG	ACTIVE		MNS000208520	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
421	127	220026200	Lakeshore and Marion Property	S Lakeshore Dr & W Marion St	LAKE CITY	55041	SPL	INACTIVE		PB3476	1	SPILL SITE	344	SW	HIGH	
422	128	220039300	Lake City Police Dept Lobby	209 S High St	LAKE CITY	55041	HWG	ACTIVE		MNS000181735	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
423	129	220027500	Kennedy Drug	223 Lakeshore Dr	LAKE CITY	55041	HWG	ACTIVE		MNS000321208	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
424	130	220051100	ISD 813 Lake City Schools Lincoln HS	300 Garden St	LAKE CITY	55041	HWG	ACTIVE		MNS000124628	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
425	131	220038300	Lake City Chiropractic	127 S High St	LAKE CITY	55041	HWG	ACTIVE		MNS000208033	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
426	132	220133103	Hearth & Home Technologies of Lake City	800 Jefferson St	LAKE CITY	55041	HWG	ACTIVE		MND041773839	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
427	133	220133103	Hearth & Home Technologies of Lake City	800 Jefferson St	LAKE CITY	55041	SPL	INACTIVE		VP1600	1	SPILL SITE	344	SW	HIGH	
428	134	220133103	Hearth & Home Technologies of Lake City	800 Jefferson St	LAKE CITY	55041	SDS	ACTIVE			1	WASTEWATER STATE DISPOSAL SYSTEM	344	SW	HIGH	
429	135	220028100	Valkos Chiropractic Office LLC	106 S Washington St	LAKE CITY	55041	HWG	ACTIVE		MND985757509	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
430	136	220024500	Lake City Marina	201 S Franklin St	LAKE CITY	55041	HWG	ACTIVE		MNR000078006	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
431	137	220024400	Family Dollar Store 3039	215 Center St E	LAKE CITY	55041	HWG	ACTIVE		MNS000202036	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
432	138	220035600	Scott A Knudsen DDS	210 N Lakeshore Dr	LAKE CITY	55041	HWG	ACTIVE		MNS000216739	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
433	139	220034900	Tom Heffernan Ford	310 Lakeshore Dr	LAKE CITY	55041	HWG	ACTIVE		MND064781594	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
434	140	220119600	River Oaks Health Care Center Inc	815 N High St	LAKE CITY	55041	HWG	ACTIVE		MNS000162073	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
435	141	220091300	Lake City WWTP	601 W Iowa St	LAKE CITY	55041	SDS	ACTIVE		MN0020664	1	WASTEWATER STATE DISPOSAL SYSTEM	344	SW	HIGH	
436	142	110017303	Gerald Gerken Farm	33925 County Road 15	LAKE CITY	55041	AFL	ACTIVE		157-86957	1	ANIMAL FEEDLOT	344	SW	HIGH	
437	143	220006503	Foodliner Inc	415 10th St	LAKE CITY	55041	HWG	ACTIVE		MNR000066712	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
438	144	220006503	Foodliner Inc	415 10th St	LAKE CITY	55041	SROUT	ACTIVE		MNRNE3DPQ	1	STORMWATER OUTLET	344	SW	HIGH	
439	145	220014500	Valley Craft Industries Inc	2001 S Highway 61	LAKE CITY	55041	HWG	ACTIVE		MND095288270	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
440	146	220014500	Pepin Heights Orchard Inc	2030 S Highway 61	LAKE CITY	55041	HWG	ACTIVE		MNS000209163	1	HAZARDOUS WASTE GENERATOR	344	SW	HIGH	
441	147	220014500	Valley Craft Industries Inc	2001 S Highway 61	LAKE CITY	55041	SDS	ACTIVE		MNG120066	1	WASTEWATER STATE DISPOSAL SYSTEM	344	SW	HIGH	
442	148	220014500	Valley Craft Industries Inc	2001 S Highway 61	LAKE CITY	55041	SDS	ACTIVE		MNP069507	1	WASTEWATER STATE DISPOSAL SYSTEM	344	SW	HIGH	
443	149	110016906	Rodney Moyer Farm	Address Unknown	LAKE CITY	55041	AFL	ACTIVE		157-86753	1	ANIMAL FEEDLOT	344	SW	HIGH	
857	150	220074300	HAROLD SOMMERFIELD	612 S. 6th ST.	LAKE CITY	55041	WEL	ACTIVE				ADDRESS LOCATED WELL	344	GW	HIGH	HIGH
858	151	080005709	DONNA KAY ANDERSON	28619 712TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
859	152	080006500	ROBWIN R & NANCY L MEYERS	28702 712TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
860	153	080024600	ROBERT & PAMELA NELLIS	71218 285TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
861	154	080005706	GORDON C & SUSAN L COX	28451 712TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
862	155	080009403	MICHAEL E & BARBARA J JOHNSON	71016 310TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
863	156	080009800	BYRON J WOHLERS	31554 706TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
864	157	080011200	CHARLES C & TERESE M HOLMSTADT	29420 710TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
865	158	080012900	JAMES T & MERRAINE M MARKING		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
866	159	080008000	MARCUS LEHMAN	71928 302ND AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
867	160	080007803	LAURA A CUNNINGHAM	71860 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
868	161	080007800	MARY S BROEKER	30125 719TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
869	162	080018100	KATHLEEN M GOIHL	69185 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
870	163	080018100	KATHLEEN M GOIHL	69185 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
871	164	080009033	RAYMOND H JR LIFFRIG	31698 717TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
872	165	080009015	CRAIG S RICHTER	31632 717TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
873	166	080009006	DUANE P & AMELIA A SCHAFFER	71634 310TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
874	167	080006903	RICHARD BREMER	29393 714TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
875	168	080009027	STEVEN & NANCY ROOZEN	71606 310TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
876	169	080009021	GORDON & KRISTEN ANDERSON	71516 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	

TABLE A-1: POTENTIAL CONTAMINATION SOURCE INVENTORY, LAKE CITY WELLHEAD PROTECTION PLAN

OBJECT ID	MAP ID	PARCEL ID	PARCEL NAME	ADDRESS	CITY	ZIP	PCSI CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	SITE DESCRIPTION	DWSMA ID	DWSMA TYPE	DWSMA VULNERABILITY	GROUNDWATER VULNERABILITY
877	170	080009030	LARRY F & PEGGY A VANHOUTEN	71554 310TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
878	171	080008012	DENNIS C & MAUREEN T SPANO	30565 716TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
879	172	110011506	DEICK L BRIDLEY	32831 712TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
880	173	080002606	KIRK W BREMER	30460 MILLERS CREEK CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
881	174	080026600	KEVIN P & NANCY H WEBSTER	72364 W MARION ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
882	175	080026400	MALACHY P & KRISTEN MCCARTHY	30511 MILLERS CREEK CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
883	176	080001000	MARK M & SHELLY J PRITZL	31998 728TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
884	177	080025800	MICHAEL EGGENBERGER	LAKE CITY 55041	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
885	178	080024400	JOHN L & CYNTHIA L THOMAS	72212 300TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
886	179	080025900	ELAINE MARKING	30544 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
887	180	080024300	TERRY & SHARI SCHUMACHER	72224 300TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
888	181	080027100	DOUGLAS L & VALDINE A LOCHNER		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
889	182	080027200	ALBERT J & IDELLA M LARSON	72158 300TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
890	183	080026000	BOYD L & JANICE E OLSON	30508 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
891	184	080025600	EDWARD & SHIRLEY SANDERS	30558 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
892	185	080026100	DAVID D & PATRICIA L BREMER	30438 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
893	186	080025500	JAMES T SCHMIDT	72236 W MARION ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
894	187	080025400	JAMES P & LORI L FRITZ	30551 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
895	188	080001103	SPRING FARM LLC	31867 720TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
896	189	080025300	DEAN A & TAMMY M FIEDLER	30525 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
897	190	080025200	TODD S & MELISSA H SCHAAL	30501 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
898	191	080025000	TERRENCE P RYAN	30421 ORCHARD RIDGE CT	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
899	192	080029700	JUDITH A BREMER	72000 300TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
900	193	080028600	ROBERT L & SHARON A STAFKI	29145 720TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
901	194	080028400	THOMAS H & EKUA T KREGEL	29141 720TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
902	195	080009009	MARLYS GERKEN	72088 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
903	196	080008009	SHARON K ANDERSON	30910 716TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
904	197	080009400	MERVIL SCHUSTER	71394 310TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
905	198	080006300	RANDALL D & SUSAN EGGENBERGER		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	LOW
906	199	080010703	BRIAN K GROTEBOER	70625 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
907	200	080013709	JON & VIRGINIA STEFFENHAGEN	70613 COUNTY ROAD 4	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
908	201	080011900	TERRY & TERRY HELBIG	70380 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
909	202	080012906	MICHAEL & JESSIN SKOUG	70011 290TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
910	203	080012903	JAMES T & MERRAINE M MARKING	69999 290TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
911	204	080018200	MOYER FARMS INC	30655 699TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
912	205	080017503	ELTON A PETERS	69909 290TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
913	206	080016303	MARY ADAMS	69841 COUNTY ROAD 4	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
914	207	080017403	RALPH E PRUTER	69330 290TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
915	208	080017803	DAVID RAINEY	69240 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
916	209	110020203	MICHAEL R & CAROL A HOOPS	69584 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
917	210	110020400	KEITH E BREMER	34901 COUNTY ROAD 78	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
918	211	110020503	PAUL J & TAMARA R AHLERS	69482 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
919	212	110019400	DEAN D & LOIS K KLEIN	69363 COUNTY ROAD 2	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
920	213	110018100	JUDITH A WOHLERS	70882 COUNTY ROAD 2	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
921	214	110018203	MARVIN L & DARLINE C HOWATT	70708 COUNTY ROAD 2	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
922	215	110015903	ANTHONY & AMY HEISE	70443 COUNTY ROAD 82	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
923	216	110017900	STEPHEN L & TERESA R BROWN	70021 335TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
924	217	110016703	TODD M & MELISSA J GREER	70074 340TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
925	218	110019603	KEVIN F & SANDRA J SMITH	70046 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
926	219	110019700	BRADLEY D & AMY M ISSENDORF	33679 700TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
927	220	110019800	BRYAN & CHARLENE JUERS	69753 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
928	221	110024700	BERNARD MURPHY FARMS LP	33155 690TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
929	222	110025403	MACKENZIE C & JILL M COLE	32249 690TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
930	223	080024200	FEDERAL HOME LOAN MTG CORP	72248 300TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
931	224	080009024	KAREN J MEYER	31684 717TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
932	225	110017403	RICHARD J & BETH W ANDERSON	70274 335TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	

TABLE A-1: POTENTIAL CONTAMINATION SOURCE INVENTORY, LAKE CITY WELLHEAD PROTECTION PLAN

OBJECT ID	MAP ID	PARCEL ID	PARCEL NAME	ADDRESS	CITY	ZIP	PCSI CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	SITE DESCRIPTION	DWSMA ID	DWSMA TYPE	DWSMA VULNERABILITY	GROUNDWATER VULNERABILITY
933	226	110017406	DERRICK D BELTZ	33590 700TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
934	227	080002900	REBECCA A HOLLY		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
935	228	080007606	DENNIS H & RUTH M WEBER	71166 COUNTY ROAD 9	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
936	229	080035300	MICHAEL D & MELISSA ACKERMANN	30436 712TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
937	230	080035000	RODGER H & SYLVIA A BROWN		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
938	231	080038100	CHRISTOPHER H & LYNETTE MATZKE	71182 302ND AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
939	232	080035400	RODGER H & SYLVIA A BROWN		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
940	233	080036200	RAYMOND L JOYAL	30623 713TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
941	234	080036000	MORGAN J & LYNN BAILEY	30551 713TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
942	235	080035800	RODGER H & SYLVIA A BROWN		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
943	236	080036600	RODGER H & SYLVIA A BROWN		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
944	237	080036500	RODGER H & SYLVIA A BROWN		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
945	238	080036400	PATRICIA A SWANSON	30698 713TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
946	239	080036700	JASON C & JESSICA M HOLST		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
947	240	080038000	DANIEL MEYER	30207 716TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
948	241	080037000	JOSEPH W & ALEXANDRA O'DONNELL		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
949	242	080036900	JON S & KATHLEEN A COLE	30692 714TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
950	243	080038700	THOMAS L & MARGERY A HARKINS		LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
951	244	080039000	DEAN P SCHMIDT	30156 715TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
952	245	080038800	BRIAN D & KELLY M KENNEDY	30151 715TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
953	246	080038900	RONALD C & DIANE K SCHURHAMMER	30150 715TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
954	247	080012909	JEFFREY W & MELONIE A MARKING	28711 699TH ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
955	248	080001718	THOMAS A & LISA E STEVENSON	72163 W MARION ST	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
956	249	080013500	MARY F O'BRIEN	70029 COUNTY ROAD 4	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
957	250	080001706	STEVEN R & DEBRA E HERZIG	72437 HIGHWAY 63	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	HIGH
958	251	110017303	GERALD J & JENNIFER D GERKEN	33925 COUNTY ROAD 15	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
959	252	080007600	RODGER H & SYLVIA A BROWN	71668 302ND AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
960	253	110020206	CRAIG PLATTE	69821 340TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
961	254	080019800	JOHN TODD LANE	68784 310TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
962	255	080017200	JAMES T & MERRAINE M MARKING	69932 290TH AVE	LAKE CITY	55041	SSTS	ACTIVE				SEPTIC SYSTEM	344	GW	HIGH	
963	256	080009700	BYRON J WOHLERS	70675 310TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
964	257	080011600	PETER H & RUTH ANN HOLMSTADT	70866 COUNTY ROAD 9	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
965	258	080017300	RICHARD J & LESA A FUNKE	28387 695TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
966	259	080018900	BERNARD MURPHY FARMS LP		LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
967	260	080017800	DALE R & RENAE L KACKMANN		LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
968	261	110012103	PHILIP P & KAY B EVERS	33458 COUNTY ROAD 15	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
969	262	080010800	DAVID E & LAURIE J BALOW		LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
970	263	080011500	JOHN H & LORRAINE M BRINKMAN	70672 COUNTY ROAD 9	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
971	264	080010500	ROBERT M & BLANCHE I BROWN	70068 310TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
972	265	080017900	DAVID E & LAURIE J BALOW	69985 COUNTY ROAD 9	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
973	266	080017700	JEFFREY E GOIHL	69738 COUNTY ROAD 9	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
974	267	080019400	MOYER FARMS INC	31599 690TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
975	268	080019000	MOYER FARMS INC		LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
976	269	110018900	DONALD C & DELAINE C KLEIN	32239 699TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
977	270	110019206	DEAN D & LOIS K KLEIN	32250 690TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
978	271	110011600	JUDITH A WOHLERS		LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
979	272	110026100	JOHN M REDMOND	34095 COUNTY ROAD 15	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
980	273	110018306	LINDA G HAGLUND	32586 COUNTY ROAD 15	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
981	274	110018303	STEVEN WILLIAM HEISE	32572 COUNTY ROAD 15	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
982	275	110018700	DEAN D & LOIS K KLEIN		LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
983	276	110020300	JEFFREY L & MICHELLE M BREMER	34924 COUNTY ROAD 78	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
984	277	110020300	JEFFREY L & MICHELLE M BREMER	34924 COUNTY ROAD 78	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
985	278	110020200	FREDERICK & MARLENE NIBBE	34372 COUNTY ROAD 78	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
986	279	110019300	DEAN D & LOIS K KLEIN	32788 698TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
987	280	110019000	DEAN D & LOIS K KLEIN	32478 699TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
988	281	110024000	PERRY LUTJEN	68772 345TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	

TABLE A-1: POTENTIAL CONTAMINATION SOURCE INVENTORY, LAKE CITY WELLHEAD PROTECTION PLAN

OBJECT ID	MAP ID	PARCEL ID	PARCEL NAME	ADDRESS	CITY	ZIP	PCSI CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	SITE DESCRIPTION	DWSMA ID	DWSMA TYPE	DWSMA VULNERABILITY	GROUNDWATER VULNERABILITY
989	282	110025000	ANITA KEERAN	68497 335TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
990	283	110025700	BERNARD MURPHY FARMS LP	68419 COUNTY ROAD 2	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
991	284	110020600	SAPA SKA FARM INC	69581 350TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
992	285	110020100	RANDY J & LORI A MEINCKE	33196 690TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
993	286	080009012	KEVIN A LIFFRIG	31654 717TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
994	287	080009018	MELISSA J KRIER	31670 717TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
995	288	080002906	TONY A & SARAH J STEGEN	72230 W LAKEWOOD AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
996	289	080001503	JOHN M REDMOND	72229 HIGHWAY 63	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
997	290	080018403	PATRICK & CYNTHIA L EBERT	70061 310TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
998	291	080002203	WILLIAM & KATHLEEN O'DONNELL	72102 W MARION ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
999	292	220017506	THOMAS HAASE	2202 S HIGHWAY 61	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
1000	293	220009506	FIRST EVANG LUTHERAN CHURCH	100 PEACE RDG	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	HIGH
1001	294	080012609	ROGER L & KOLETTE A LEONHARDT	69959 290TH AVE	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
1002	295	110011703	TODD B & WENDY JO SIEWERT	32068 712TH ST	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
1003	296	110016906	RODNEY R & ELIZABETH MOYER	LAKE CITY 55041	LAKE CITY	55041	SSTS	UNKNOWN				SUSPECTED SEPTIC SYSTEM	344	GW	HIGH	
1004	297	080009033	RAYMOND H JR LIFFRIG	31698 717TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1005	298	080009015	CRAIG S RICHTER	31632 717TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1006	299	080006903	RICHARD BREMER	29393 714TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	LOW
1007	300	080025900	ELAINE MARKING	30544 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	LOW
1008	301	080025500	JAMES T SCHMIDT	72236 W MARION ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	LOW
1009	302	080025400	JAMES P & LORI L FRITZ	30551 ORCHARD RIDGE CT	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	LOW
1010	303	080028400	THOMAS H & EKUA T KREGEL	29141 720TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	LOW
1011	304	080009009	MARLYS GERKEN	72088 HIGHWAY 63	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1012	305	080009012	KEVIN A LIFFRIG	31654 717TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1013	306	080009018	MELISSA J KRIER	31670 717TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1014	307	080009024	KAREN J MEYER	31684 717TH ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1015	308	080002900	REBECCA A HOLLY	LAKE CITY 55041	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1016	309	080001503	JOHN M REDMOND	72229 HIGHWAY 63	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1017	310	080002203	WILLIAM & KATHLEEN O'DONNELL	72102 W MARION ST	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1018	311	220017506	THOMAS HAASE	2202 S HIGHWAY 61	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH
1019	312	220009506	FIRST EVANG LUTHERAN CHURCH	100 PEACE RDG	LAKE CITY	55041	WEL	UNKNOWN				SUSPECTED WELL	344	GW	HIGH	HIGH



OLD MUNICIPAL WELL SEARCH

City of Lake City (PWSID 1790004, Wabasha County)

Reference	Well Name	Unique #	Drilled Well Depth (feet)	Completed Well Depth (feet)	Depth Cased: Deepest (feet)	Casing Diameter: Narrowest (inches)		Initial Year Constructed	Construction Method		Year Out of Service	Year Sealed	Sealing Record Available	Location	Remarks
1			60	60			befr	1909	dug					15 feet NW of brick pumping station and 200 feet from the edge of Lake Pepin	1919 Sanitary Rpt: 18 ft. diam., 26 ft deep dug well with 28 4-in. well points driven into base to depth of about 60 ft. 1929: began using dug well as cistern. 1909 Sanborn map.
2			98	98		12		1929	cable tool		1954			Short distance north of dug well (1)	Water pumped from well (Reference 2) into well pit (1, above) now a cistern. 1930 Sanborn map mentions 2 city wells. 1954: Disconnected 1966: Filled
6	Lake City Old 3	223329	479	479	258	16		1973	cable tool		1973				1/28/75 MDH Sanitary Rpt.: Abandoned due to highly mineralized water. <u>No well specifications in rpt.</u> Reportedly being monitored by the DNR. 223329 is only DNR Observation Well drilled just before 1975 MDH report. Confirm this uniq. ID is for well mentioned in 1975 MDH Rpt.
7	Well No. 3		240	240		12		1974							1Suite (MDH 1980s) lists this well. Does not match any known City well.
Databases Searched: MDH District scanned files MDH DPW Microfiche (1919-85) MDH DWP MNDWIS, WELLS & 1Suite MGS, Bulletin 31 So. MN (1944) or Bulletin 32 No. MN (1947) Lakeswoods.com & Biennial Report of the MN State Dairy and MNBrew.com (breweries) & Sanborn Fire Insur. Maps Past & Present MN RR Stations This list does not include those wells currently, Permanent, Active Compiled by: G.Nash Date: 8/31/2012 SE Dist					LAKE Township, beside Lake Pepin, was first settled in 1853-54; the village of Lake City was platted in 1856. The city was incorporated February 26, 1872. The city, governed with Goodhue County, was incorporated as a village in 1909. Th village had a station of the Chicago, Milwaukee and St. Paul Railroad. This station was on the SW side of North 8th Street between W. Chestnut Street and Lyon Avenue. Attached photosy, 1 from 1914 shows the location of a watertower at the railway station. Sanborn Fire Insurance Maps (attached) from 1885, 1891, 1894, 1900, 1909, 1921, and 1938 were reviewed and several wells were identified. One creamery, the Lake City Creamery was reported to be in operation in 1907. Four breweries operated in the city: 1) Peter Bech & Co. (1885), 2) James Fitzsimmons (1875), 3) Schmidt & Co. (1885-1902), & 4) Charles Wise (1875).										

Old Municipal Well Worksheet *City of Lake City, DWSID 1790004, Wabasha County*

Sequential number	Well Name/ #	Casing Diameter	Well Depth	Depth Cased	Year Const.	Well Type	Yr. Out Of Service	Sealing Record	Location
1	(119) (123) Bug: 16 ft (139) 18 ft		20 ft 20 ft		Pre-1916	Dug	1954: Disconnected 1966: Filled		* 15 ft NW of brick pumping station, 200 ft from edge of Lake Pepin.
2	(129) (130) (139)	12 inch	96 ft 98 ft		1929	Drilled	1954: Disconnected 1966: Filled		* Short distance North of old well
3 ACTIVE	Jewel Ave. well (157) Well No. 1	16 inch 8 inch x 16 inch (172)	146 ft 140 ft	0-121 ft	1949				* Western portion of the city * 1/4 mile W. of RR tracks on Jewel St.
4 ACTIVE	Prairie Ave. Well (157) Well No. 2	12 inch 12 in x 16 inch (172)	112 ft 160 ft	132 ft	1954				* South part of City * intersection of Prairie St & Wisconsin St.
5 ACTIVE	Well #3				1974				
6							Abandoned		Now Monitored by DNR
7 ACTIVE	Well # 4				1982				

Lake City Active Wells

- Well #1 226873
- Well #2 226872
- Well #3 241415
- Well #4 191592

PWSID: **1790004**
PWS Name: **Lake City**
PWS Type: **Community**
PWS Status: **Active**

Public Water Supply Sources: Information from MNDWIS and CWI (sorted by Sample Point ID)

Source Type Codes: **GW** = Ground water; **SW** = Surface water; **GUI** = Ground water under influence

Location Source: **MGS** = digitized by the MN Geological Survey; * indicates incomplete records

MNDWIS and CWI data value discrepancies are shown in **RED** (0 or null values excepted).

MNDWIS PWS SOURCES IN FLOW														
Source Info						MNDWIS Data				CWI Data				
Sample Point ID	Name	Type	Availability	Status	Well No. (link to Well Log(s))	Location Info (link to Map)	Drill Year	Depth (in feet)	Case Depth (in feet)	Case Diam. (in inches)	Drill Date	Depth Completed (in feet)	Case Depth (in feet)	Case Diam. (in inches)
S01	Well #1	GW	Primary	Active	226873	01/01/1990 (MGS)	1949	150	140	16	04-00-1949	146.00	121.00	16.00
S02	Well #2	GW	Primary	Active	226872	01/01/1990 (MGS)	1953	163	133	12	07-00-1953	163.00	133.00	12.00
S03	Well #3	GW	Primary	Active	241415	07/02/1996 (MGS)	1974	130	100	16	01-18-1974	130.00	100.00	16.00
S04	Well #4	GW	Primary	Active	191592	01/01/1990 (MGS)	1982	143	113	16	12-23-1982	143.00	113.00	16.00

UNVERIFIED Well Data (still in development / testing) - no data found.

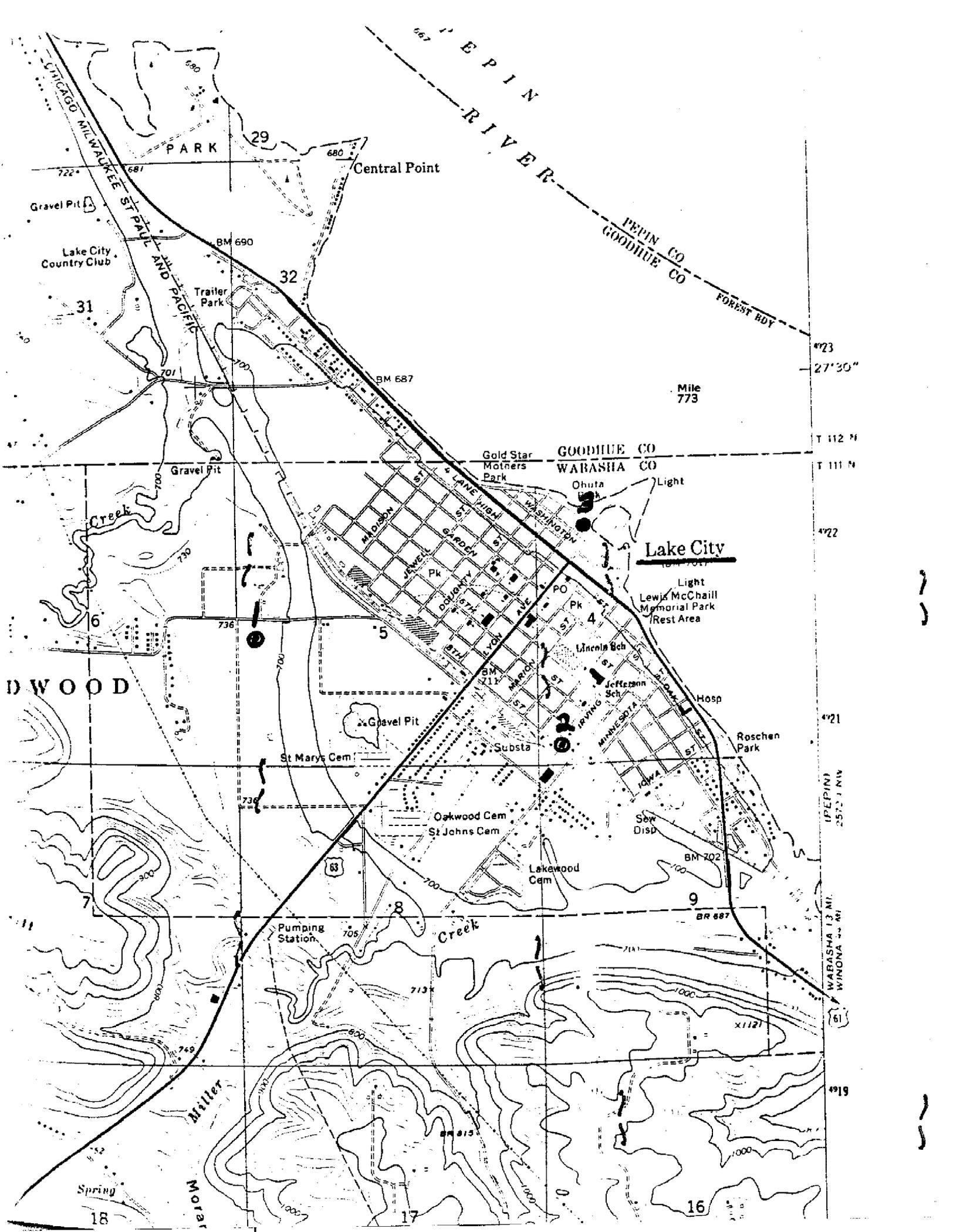
UNVERIFIED Well Data (still in development / testing) - the following data are from RAW HYDRO spreadsheets, and need to be processed accordingly.													
Reference in Record	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
1	.		1923: 25 feet 1939: 26 feet			1923: 16 feet 1939: 18 feet	Pre-1916	Dug	1954: Disconnected 1966: Filled	No Sealing Record Found		*15 feet NW of brick pumping station and 200 feet from the edge of Lake Pepin	
2	.		1930: 96 feet 1939: 98 feet			12 inch	1929	Drilled	1954: Disconnected 1966: Filled	No Sealing Record Found		*Short distance North of Dug well on the edge of Lake Pepin	
6	.						1975		1975: Abandoned	No Sealing Record Found		*Now being monitored by the Dept. of Natural Resources	
Databases Searched						Trivia							
Unverified Well Data Compiled By: Justin Blum Compiled Date: 6/24/2005													

Source: MN Dep't. of Health - 8/31/2012

Restart

District scanned files:Y
1Suite:Y
CWI:Y
MNDWIS:Y
WELLS:Y
LakesnWoods.com:Y
MN Creameries (1907):Y, 1
MNBrew.com (www.historyontheweb.org/minnbrew/brwlst7.html):Y, 4
MN Railroad Stations (www.west2k.com/mnstations/mnstations.html):Y, 1
MGS Bulletin 27, 31 or 32:Y
Sanborn Maps:Y, 1885, 1891, 1894, 1900, 1909, 1921, and 1938.
Microfiche:Y

Compiled by: G.Nash 8/31/2012



PEPIN RIVER

CHICAGO MILWAUKEE ST PAUL AND PACIFIC
PARK
Gravel Pit
Lake City Country Club
Trailer Park
Central Point

PEPIN CO
GOODHUE CO
FOREST RDY

GOODHUE CO
WABASHA CO

Lake City

D WOOD

St Marys Cem

Oakwood Cem
St Johns Cem

Lakewood Cem

Roschen Park

Pumping Station

Creek

BM 702

PEPIN
WABASHA 13 MI.
WINONA 4 MI.

R23

T 112 N

T 111 N

R22

R21

R19

Mile
773

R16

R18

R17

R30

R29

R32

R31

R6

R7

R11

R9

R10

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

R41

R42

R43

R44

R45

R46

R47

R48

R49

R50

R51

R52

R53

R54

R55

R56

R57

R58

R59

R60

R61

R62

R63

R64

R65

R66

R67

R68

R69

R70

R71

R72

R73

R74

R75

R76

R77

R78

R79

R80

R81

R82

R83

R84

R85

R86

R87

R88

R89

R90

R91

R92

R93

R94

R95

R96

R97

R98

R99

R100

R101

R102

R103

R104

R105

R106

R107

R108

R109

R110

R111

R112

R113

R114

R115

R116

R117

R118

R119

R120

R121

R122

R123

R124

R125

R126

R127

R128

R129

R130

R131

R132

R133

R134

R135

R136

R137

R138

R139

R140

R141

R142

R143

R144

R145

R146

R147

R148

R149

R150

R151

R152

R153

R154

R155

R156

R157

R158

R159

R160

R161

R162

R163

R164

R165

R166

R167

R168

R169

R170

R171

R172

R173

R174

R175

R176

R177

R178

R179

R180

R181

R182

R183

R184

R185

R186

R187

R188

R189

R190

R191

R192

R193

R194

R195

R196

R197

R198

R199

R200

R201

R202

R203

R204

R205

R206

R207

R208

R209

R210

R211

R212

R213

R214

R215

R216

R217

R218

R219

R220

R221

R222

R223

R224

R225

R226

R227

R228

R229

R230

R231

R232

R233

R234

R235

R236

R237

R238

R239

R240

R241

R242

R243

R244

R245

R246

R247

R248

R249

R250

R251

R252

R253

R254

R255

R256

R257

R258

R259

R260

R261

R262

R263

R264

R265

R266

R267

R268

R269

R270

R271

R272

R273

R274

R275

R276

R277

R278

R279

R280

R281

R282

R283

R284

R285

R286

R287

R288

R289

R290

R291

R292

R293

R294

R295

R296

R297

R298

R299

Lake City

from 1 Suite

Below are descriptions of your municipal wells according to our records. On the opposite side of this sheet is a map of your municipality, and the location of your municipal wells, located as accurately as possible using our present records. Please confirm or correct the location and numbering of your wells and include any wells that are not shown.

Well No.	Well Depth	Casing Dia.	Casing Depth	Drop Pipe Length	Year Installed	Status	
226873	1	146	16		1949	ACTIVE	
226872	2	162	12		1954	ACTIVE	
7	3	240	12		1974	ACTIVE	
	4	NOT COMPLETED YET					

This is not 241415 or 223329 (well 6 in OMW search sequence).

LAKE CITY (3,976)-WABASHA-GOODHUE

DI ACRO DIVISION OF HOUDAILLE INDUSTRIES INC

800 Jefferson Lake City 55041
 Mark Lowell Pres 612-345-4571
 Corp 1947 Over 10000 250 To 499 Loc Reg Nat Exp
 8079 Urethane Elastomer Products
 8342 Metal Form Punch Shear Machines
 8342 Press Brakes, Sheet Metal Work Mach
 8344 Press Brake Dies, Punches & Dies

ENGINEERING LABORATORY DESIGN INC

Box 278 Lake City 55041
 S H Anderson Pres 612-345-4515
 Corp 1971 100-249 1-8 Loc Reg Nat Exp
 3811 Scientific Laboratory Equipment
 3811 Research Laboratory Equipment
 3811 Laboratory Equipment Teaching
 3829 Specialized Test Equipment

FARMERS ELEVATOR CO

8th & Dwellie Lake City 55041
 Ronald Christians Mgr 612-345-3328
 Coop 1918 2000-4999 9 To 24 Loc
 2048 Feed Grinding & Mixing
 2875 Bulk Blend Fertilizers

GOULD INC FOUNDRY PRODUCTS DIVISION

8th & Doughty St Lake City 55041
 Therod B Barnes Oper Mgr 612-345-4541
 Corp 1968 25-49 500 To 749 Loc Reg Nat Exp
 3321 Gray Iron Foundry, Castings
 3361 Aluminum Permanent Mold Castings
 3392 Pistons Machined

HARRIS, B W MFG CO

10 & Lakewood Lake City 55041
 Frank Wendt PR Mgr 612-345-2711
 Corp 1946 100-249 75 To 99 Nat
 St Paul West St Paul Stillwater
 2329 Mens Outerwear
 2337 Womens Outerwear

HIAWATHA DESIGN INC

111 South 8th Street Lake City 55041
 Jim Miller, D Schumacher Partners 612-345-4567
 Part 1971 100-249 1-8 Loc Reg
 2751 Commercial Printing
 2752 Creative Art And Design
 2791 Typesetting

INDEPENDENT GRAIN & FEED COMPANY

801 Lyon Avenue Lake City 55041
 Ivan C Sievers Manager 612-345-4511
 Part 1956 25-49 1-8 Loc
 2875 Bulk Blend Fertilizers

LAKE CITY CONC PROD CO

21 W Dwellie Lake City 55041
 Harro Walters Pres 612-345-3222
 Corp 1946 500-999 9 To 24 Loc
 3871 Building Blocks
 3872 Cesspools & Septic Tanks
 3873 Ready Mixed Concrete

LAND O LAKES INC

R 1 Lake City 55041
 Wm Heise Mgr 907-753-2464
 Coop 1913 1000-1999 9 To 24 Loc Reg Nat Exp
 2023 Spray Dry Cheese Powder
 2023 Whey Powder

LEARN X CORPORATION

1600-2400 Lakewood Av Lake City 55041
 A T Oseil Pres 612-345-3775
 Corp 1965 500-999 250 To 499 Loc Nat
 3999 Mult Sensory Learning Educ Equip

ONEIL-IRWIN MANUFACTURING CO

8000 8th Avenue Lake City 55041
 A T Oseil President 612-345-3775
 Part 1939 Under 10 1-8 Loc Reg Nat
 3546 Ind Hand-Held Tool Spindage Systems

PERFECTION PRINTERS

122 N Washington St Lake City 55041
 Dean Sperting 612-345-2727
 Prop 1938 50-99 1-8 Loc
 2738 Job Printing
 2742 Job Printing

TINNANT & HOYT COMPANY

Mission St Lake City 55051
 Charles R Hoyt Chf Of Bd 612-345-3351
 Corp 1901 Over 10000 75 To 99 Nat
 2041 Flour
 2041 Millfeeds

VALLEY CRAFT PRODUCTS INC

South Highway 41 Lake City 55041
 Carl E Weimann President 612-345-3386
 Corp 1965 2000-4999 50 To 74 Nat
 Winona
 3536 Hoists
 3537 Elect Vehicles Materials Handling
 3537 Carts Carts With Brakes

WILD WINGS INC

William B Webster Lake City 55041
 Pres 612-345-4766
 Corp 1969 1000-1999 9 To 24 Nat
 Edina
 2721 Wildlife Art & Sporting Print Pub

Thank you for your cooperation!

P.A. 80-5059

WELL RECORD

226873

active well

#1

KEYS WELL DRILLING COMPANY

68A

WATER PRODUCERS

SAINT PAUL, MINNESOTA
TEST HOLE

LAKE CITY #1

QWTA
H

Owner LAKE CITY, MINNESOTA

Date Completed APRIL 1949

Location

Driller Ledbeter/Bowler

Well No.

Size 8"

Total Depth 242'

Type

DRILLERS LOG

WELL MATERIALS

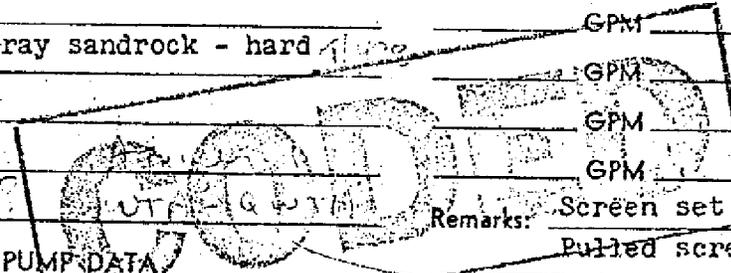
R000
2700
0700
0200
ECCR

0'	to	1'6"	Loam
1'6"	to	6'	Clayish sand and gravel
6'	to	150'	Sand and gravel
150'	to	155'	Fine sand and gravel
155'	to	176'	Sand and gravel
176'	to	180'	Hardpan
180'	to	192'10"	Blue clay
192'10"	to	214'	Hard Blue Shale 1/507
214'	to	222'	Hard blue shale and gray blue sandrock
222'	to	242'	Gray sandrock - hard 1/100

' of _____"	diameter of Outer Casing
' of _____"	diameter of Open Hole
' of _____"	diameter of Inner Casing
' of _____"	diameter of Open Hole
' to _____	Mix grout _____ (yds.) (Sacks)
' _____"	diameter _____ Screen

RECORD OF TEST PUMPING

Static Water Level	31'9"	ft. from	
340 GPM	11'	D.D.	24 Hours
GPM		D.D.	Hours
GPM		D.D.	Hours
GPM		D.D.	Hours
GPM		D.D.	Hours



Remarks: Screen set at 140' to 150'
Pulled screen and casing and backfill

PERMANENT PUMP DATA

Mfg _____ Type _____ Serial No. _____

Capacity _____ GPM _____ TDH _____

Motor Make _____ Type _____

H.P. _____ Volts _____ Ph. _____ RPM _____

ft. _____ in Col. pipe _____ in. Shaft _____

ft. _____ in Bowls _____ Stages _____ Type _____

ft. _____ in suction pipe & _____

ft. Total Length of Pump _____

ft. _____ in. drop pipe & _____ No. _____ Cable _____

ft. _____ in. air line _____

in. Pit _____ ft. bury _____ in. outle _____

As per Bob Allison - B&C Well

Test 1400 GPM Clear 24 hr test

16" 31' static 25' of 16" Everdur

20' DD

51 at 1400 GPM

111-12-5 CABBC

el. 700 ± 5

located by City Eng.

Well depth does not agree with that given by City Eng.

KEYS WELL DRILLING COMPANY

WATER PRODUCERS

SAINT PAUL, MINNESOTA

LAKE City #2

68A

#2
PwTA
H

CITY OF LAKE CITY, MINN.

JULY 1953

Owner _____ Date Completed _____

John & Don

Location _____ Driller _____

Well No. _____ Size 12" Total Depth 163' Type Screen

DRILLERS LOG

0 to 26 Sand and gravel
 26 to 40 Sand & gravel & clay mixed
 40 to 162 Sand & gravel
 162 to 163 Fine sand

WELL MATERIALS

134' of 12" Wrought Steel Pipe
 " diameter of Outer Casing
 " of " diameter of Open Hole
 Starter pipe
 23' of 16" " diameter of Outer Casing
 " of " diameter of Open Hole
 " to " Mix grout _____ (yds.) (Sacks)
 30' " diameter Johnson Screen *

RECORD OF TEST PUMPING

Static Water Level 38 ft. from _____
 832 GPM 15' D.D. _____ Hours
 726 GPM 13' D.D. _____ Hours
 632 GPM 12' D.D. _____ Hours
 510 GPM 9' D.D. _____ Hours
 _____ GPM _____ D.D. _____ Hours
 * 14' Slot #30
 16' Slot #40

PERMANENT PUMP DATA Pump sold by Layne

Mfg. _____ Type _____ Serial No. _____

Capacity 500 GPM 245 TDH

Motor Make _____ Type w/right angle drive and eng.

50 H.P. _____ Volts _____ Ph. _____ RPM

ft. _____ in Col. pipe _____ in. Shaft

ft. 10" in Bowls 6 Stages _____ Type

ft. _____ in suction pipe & _____

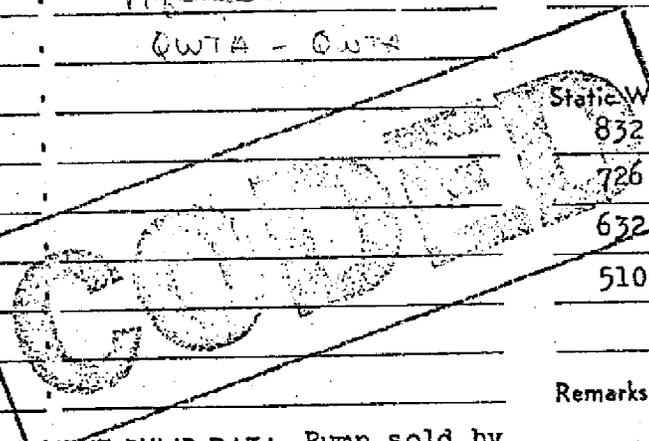
ft. Total Length of Pump

ft. _____ in drop pipe & _____ No. Cable

ft. _____ in. air line

in. Pitless _____ ft. Bury _____ in. Outlet

80' setting



111-12-4 CDCDAD
elev. 707.5'

Located by City Engineer

Depth listed on log does not agree with the depth given by the city eng. but the date does.

#3
QWTA
H

241415

active well

M95 936

LAYNE MINNESOTA COMPANY
3147 CALIFORNIA STREET, N.E.
MINNEAPOLIS MINNESOTA

WELL LOG

JOB NAME MUNICIPAL WELL No. 3-A No. 3 STARTED NOVEMBER 5, 1973
LOCATION LAKE CITY, MINNESOTA COMPLETED JANUARY 18, 1974
CHESTNUT STREET AND PARK STREET JOB NUMBER 1073WS9F

FORMATION LOG

FROM	TO	MATERIAL	FROM	TO	MATERIAL
0'	10'	TOP SOIL, SAND & GRAVEL			
10'	28'	SAND & GRAVEL (BROWN)			
28'	130'	SAND & SOME GRAVEL (BROWN)			

METHOD OF DRILLING CABLE TOOL RIG USED B.E. 28 DIAMETER OF HOLE 16 IN.
WAS OUTER CASING CEMENTED No METHOD x AMOUNT OF CEMENT x CY.
DEPTH OF WELL, -FROM GROUND LEVEL 130 FT. -FROM TOP OF CASING 132.5 FT. STATIC 16 FT.
UNDER REAMED FROM x FT. TO x FT. DIAMETER x IN. METHOD x
SIZES OF GRAVEL NONE USED AMOUNT NONE CY.
WELL SHOT AT x FT. TO x FT. NUMBER x SIZE x LBS. REMOVED x CY.

MATERIAL INSTALLED IN WELL

	OPENING	LENGTH	DIAMETER	MATERIAL
SCREEN	SEE DETAIL	30' 0"	NOMINAL 16"	TYPE 304 STAINLESS STEEL
DRIVE CASING		132' 6"	16"	STEEL
LIVER CASING		NONE	"	
		X		

PUMPING TEST

HRS PUMPED		YIELD	WATER LEVEL		DRAWDOWN	REMARKS
FROM	TO		BELOW SURFACE			
SEE DETAILED		GPM	'	"	'	"
PUMPING TEST		GPM	'	"	'	"
		GPM	'	"	'	"
		GPM	'	"	'	"

TIME TO CLEAR 1 HRS 0 MIN. SPECIFIC CAPACITY 75.2 GPM/FT OF LD.
DATE FEBRUARY 1, 1974 DRILLER RODNEY C. ERLER

WELL RECORD

228446

KEYS WELL DRILLING COMPANY
WATER PRODUCERS

SAINT PAUL, MINNESOTA

WABASHA CO.

Lake City Boat Club well

Owner City of Lake City, Minnesota Date Completed July 27, 1967

Location Adjacent to harbor Driller Don Schilling

Well No. 1 Size 8" Total Depth 53' Type Screen

DRILLERS LOG

0 to 15 Fill & rocks
15 to 37 Dirty gravel & rocks
37 to 50 Coarse gravel & sand
50 to 53 Sand

WELL MATERIALS

42 of 8" diameter of Outer Casing
of " diameter of Open Hole
of " diameter of Inner Casing
of " diameter of Open Hole
to Mix grout (yds.) (Sacks)
10 of 6" diameter #40 Armco Screen

LOCATED BY	
1 - <input type="checkbox"/>	Address Verification
2 - <input type="checkbox"/>	Name on Mailbox
3 - <input checked="" type="checkbox"/>	Lot Block
4 - <input type="checkbox"/>	Plat Book
5 - <input type="checkbox"/>	Info. From Owner
6 - <input type="checkbox"/>	Info. From Neighbor
7 - <input type="checkbox"/>	Other
<input checked="" type="checkbox"/>	Can't Locate State, Why

RECORD OF TEST PUMPING

Static Water Level 12 ft. from top of pipe
GPM D.D. Hours
GPM D.D. Hours
GPM D.D. Hours
GPM D.D. Hours
GPM D.D. Hours

Remarks: No Test.

PERMANENT PUMP DATA

Mfg. Pearless Type Screen Serial No. _____

Capacity 150 GPM _____ TDH _____

Motor Make _____ Type VHS

7 1/2 H.P. 220 Volts 1 Ph. _____ RPM _____

30 ft. 4 in Col. pipe 1 in. Shaft

4 ft. 4 in Bowls 12 Stages _____ Type _____

_____ ft. in suction pipe & _____

ft. Total Length of Pump _____

ft. _____ in drop pipe & _____ No. Cable _____

ft. _____ in air line _____

in. Pitless _____ ft. bury _____ in outlet _____

DUPLICATE

Can't locate - City Eng thinks it is the Boat Club well.
Nobody was here to ask.

222329

6

LAYNE MINNESOTA COMPANY

3147 CALIFORNIA STREET, N.E.
MINNEAPOLIS MINNESOTA

WELL LOG

JOB NAME CITY OF LAKE CITY, MINNESOTA STARTED MAY 2ND, 1973

LOCATION CHESTNUT AND PARK STS., LAKE CITY COMPLETED JULY 20TH, 1973

WELL No. 3 *New Addition* JOB NUMBER 373WS2CUT

FORMATION LOG

FROM	TO	MATERIAL	FROM	TO	MATERIAL
0'	2'	TOP SOIL	460'	465'	RED - SANDROCK & SHALE
2'	20'	GRAVEL - ROCKS	465'	479'	RED SHALE
20'	294'	WATER BEARING SAND & GRAVEL			
194'	340'	GREY - DIRTY SANDROCK			
340'	460'	BROWN - DIRTY SANDROCK			

METHOD OF DRILLING CABLE TOOL RIG USED 36-1 DIAMETER OF HOLE 24x16x12 IN.
 WAS OUTER CASING CEMENTED YES METHOD 2" PIPE AMOUNT OF CEMENT 437 BAGS XX.
 DEPTH OF WELL, -FROM GROUND LEVEL 477 FT. -FROM TOP OF CASING 479 FT. STATIC 14 FT. 6"
 UNDER REAMED FROM NO FT. TO FT. DIAMETER X IN. METHOD X
 SIZES OF GRAVEL X AMOUNT X CY.
 WELL SHOT AT NO FT. TO X FT. NUMBER X SIZE X LBS. REMOVED X CY.
 BOTTOM 37' OF WELL WAS CEMENTED OFF TO TRY TO STOP SALT.

MATERIAL INSTALLED IN WELL

	OPENING	LENGTH	DIAMETER	MATERIAL
SCREEN		' "	"	
DRIVE CASING		201'	24"	STEEL CASING
LINER CASING		257' 7"	16"	" "

PUMPING TEST SEE TEST PUMP REPORTS

HRS PUMPED		YIELD	WATER LEVEL		DRAWDOWN		REMARKS
FROM	TO		BELOW SURFACE				
		GPM	' "	' "			
		GPM	' "	' "			
		GPM	' "	' "			
		GPM	' "	' "			

TIME TO CLEAR X HRS X MIN. SPECIFIC CAPACITY X GPM/FT OF DD.
 DATE JULY 20TH 1973 DRILLER MERLE JOHNSON

6

Minnesota Unique Well No.

222329

County Wabasha
 Quad Lake City
 Quad ID 68A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Entry Date 11/04/1987
 Update Date 02/24/2004
 Received Date

Minnesota Statutes Chapter 103I

Well Name LAKE CITY OLD 3 Township Range Dir Section Subsections Elevation 685 ft. 111 12 W 4 BBDCBA Elevation Method topographic map (+/- 5 feet)		Well Depth 479 ft. Depth Completed 479 ft. Date Well Completed 07/20/1973 Drilling Method Cable Tool																	
Well Address LAKE CITY MN 55041 Geological Material Color Hardness From To TOPSOIL BROWN 0 2 GRAVEL - ROCKS 2 20 WATER BEARING SAND & GRAVEL 20 194 DIRTY SANDROCK GRAY 194 340 DIRTY SANDROCK BROWN 340 460 SANDROCK & SHALE RED 460 465 SHALE RED 465 479		Drilling Fluid -- Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. Use Observation well Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No No Above/Below 1 ft. <table border="1"> <thead> <tr> <th>Casing Diameter</th> <th>Weight</th> <th>Hole Diameter</th> </tr> </thead> <tbody> <tr> <td>24 in. to 201 ft.</td> <td>lbs./ft.</td> <td>24 in. to 258 ft.</td> </tr> <tr> <td>16 in. to 258 ft.</td> <td>lbs./ft.</td> <td>16 in. to 479 ft.</td> </tr> </tbody> </table> Open Hole from 258 ft. to 479 ft. Screen NO Make Type <table border="1"> <thead> <tr> <th>Diameter</th> <th>Slot/Gauze</th> <th>Length</th> <th>Set Between</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> Static Water Level 13 ft. from Land surface Date Measured 07/20/1973 PUMPING LEVEL (below land surface) 153 ft. after hrs. pumping 1023 g.p.m. Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)	Casing Diameter	Weight	Hole Diameter	24 in. to 201 ft.	lbs./ft.	24 in. to 258 ft.	16 in. to 258 ft.	lbs./ft.	16 in. to 479 ft.	Diameter	Slot/Gauze	Length	Set Between				
Casing Diameter	Weight	Hole Diameter																	
24 in. to 201 ft.	lbs./ft.	24 in. to 258 ft.																	
16 in. to 258 ft.	lbs./ft.	16 in. to 479 ft.																	
Diameter	Slot/Gauze	Length	Set Between																
REMARKS GAMMALOGGED 12-28-1995. M.G.S. NO. 886. SALINE WELL. WELL MONITORED BY MNDNR. Located by: Minnesota Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table) Unique Number Verification: Information from owner Input Date: 01/01/1990 System: UTM - Nad83, Zone15, Meters X: 558417 Y: 4922282		Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grout Material: Neat Cement from 0 to 258 ft. 437 bags Nearest Known Source of Contamination ___feet ___direction ___type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number ___ HP ___ Volts Length of drop Pipe ___ft. Capacity ___g.p.m Type Material																	
Cuttings Yes Borehole Geophysics Yes First Bedrock Mt.Simon Sandstone Aquifer Multiple Last Strat Fond Du Lac Formation Depth to Bedrock 194 ft.		Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No Well Contractor Certification Layne Well Co. 27010 JOHNSON, M. License Business Name Lic. Or Reg. No. Name of Driller																	
County Well Index Online Report		222329 Printed 8/31/2012 HE-01205-07																	

APPENDIX B

**CITY OF LAKE CITY
CONSUMER CONFIDENCE REPORT**

Lake City

2018 DRINKING WATER REPORT

Making Safe Drinking Water

Your drinking water comes from a groundwater source: four wells ranging from 130 to 163 feet deep that draw water from the Quaternary Water Table aquifer.

Lake City works hard to provide you with safe and reliable drinking water that meets federal and state water quality requirements. The purpose of this report is to provide you with information on your drinking water and how to protect our precious water resources.

Contact Tim Dick, water/w-water supervisor, at 651 301 0578 or Tdick@ci.lake-city.mn.us if you have questions about Lake City's drinking water. You can also ask for information about how you can take part in decisions that may affect water quality.

The U.S. Environmental Protection Agency sets safe drinking water standards. These standards limit the amounts of specific contaminants allowed in drinking water. This ensures that tap water is safe to drink for most people. The U.S. Food and Drug Administration regulates the amount of certain contaminants in bottled water. Bottled water must provide the same public health protection as public tap water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Lake City Monitoring Results

This report contains our monitoring results from January 1 to December 31, 2018.

We work with the Minnesota Department of Health to test drinking water for more than 100 contaminants. It is not unusual to detect contaminants in small amounts. No water supply is ever completely free of contaminants. Drinking water standards protect Minnesotans from substances that may be harmful to their health.

Learn more by visiting the Minnesota Department of Health's webpage [Basics of Monitoring and Testing of Drinking Water in Minnesota](https://www.health.state.mn.us/communities/environment/water/factsheet/sampling.html) (<https://www.health.state.mn.us/communities/environment/water/factsheet/sampling.html>).

How to Read the Water Quality Data Tables

The tables below show the contaminants we found last year or the most recent time we sampled for that contaminant. They also show the levels of those contaminants and the Environmental Protection Agency's limits. Substances that we tested for but did not find are not included in the tables.

We sample for some contaminants less than once a year because their levels in water are not expected to change from year to year. If we found any of these contaminants the last time we sampled for them, we included them in the tables below with the detection date.

We may have done additional monitoring for contaminants that are not included in the Safe Drinking Water Act. To request a copy of these results, call the Minnesota Department of Health at 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Definitions

- **AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **EPA:** Environmental Protection Agency
- **MCL (Maximum contaminant level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum contaminant level goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **ppb (parts per billion):** One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. ppb is the same as micrograms per liter (µg/l).
- **ppm (parts per million):** One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. ppm is the same as milligrams per liter (mg/l).
- **PWSID:** Public water system identification.

Monitoring Results – Regulated Substances

LEAD AND COPPER – Tested at customer taps.						
Contaminant (Date, if sampled in previous year)	EPA's Action Level	EPA's Ideal Goal (MCLG)	90% of Results Were Less Than	Number of Homes with High Levels	Violation	Typical Sources
Copper (07/14/16)	90% of homes less than 1.3 ppm	0 ppm	0.21 ppm	0 out of 20	NO	Corrosion of household plumbing.
Lead (07/14/16)	90% of homes less than 15 ppb	0 ppb	2.7 ppb	0 out of 20	NO	Corrosion of household plumbing.

INORGANIC & ORGANIC CONTAMINANTS – Tested in drinking water.

Contaminant (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Nitrate	10.4 ppm	10 ppm	3.3 ppm	2.00 - 3.30 ppm	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

OTHER SUBSTANCES – Tested in drinking water.

Substance (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Fluoride	4.0 ppm	4.0 ppm	0.84 ppm	0.73 - 0.80 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

Monitoring Results – Unregulated Substances

Fourth Unregulated Contaminant Monitoring

Contaminant	Comparison Value	Highest Average Result or Highest Single Test Result	Range of Detected Test Results
Manganese	100 ppb	2.1 ppb	Nd – 2.3 ppb

Some People Are More Vulnerable to Contaminants in Drinking Water

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. The developing fetus and therefore pregnant women may also be more vulnerable to contaminants in drinking water. These people or their caregivers should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Learn More about Your Drinking Water

Drinking Water Sources

Minnesota's primary drinking water sources are groundwater and surface water. Groundwater is the water found in aquifers beneath the surface of the land. Groundwater supplies 75 percent of Minnesota's drinking water. Surface water is the water in lakes, rivers, and streams above the surface of the land. Surface water supplies 25 percent of Minnesota's drinking water.

Contaminants can get in drinking water sources from the natural environment and from people's daily activities. There are five main types of contaminants in drinking water sources.

- **Microbial contaminants**, such as viruses, bacteria, and parasites. Sources include sewage treatment plants, septic systems, agricultural livestock operations, pets, and wildlife.
- **Inorganic contaminants** include salts and metals from natural sources (e.g. rock and soil), oil and gas production, mining and farming operations, urban storm water runoff, and wastewater discharges.
- **Pesticides and herbicides** are chemicals used to reduce or kill unwanted plants and pests. Sources include agriculture, urban storm water runoff, and commercial and residential properties.
- **Organic chemical contaminants** include synthetic and volatile organic compounds. Sources include industrial processes and petroleum production, gas stations, urban storm water runoff, and septic systems.
- **Radioactive contaminants** such as radium, thorium, and uranium isotopes come from natural sources (e.g. radon gas from soils and rock), mining operations, and oil and gas production.

The Minnesota Department of Health provides information about your drinking water source(s) in a source water assessment, including:

- How Lake City is protecting your drinking water source(s);
- Nearby threats to your drinking water sources;
- How easily water and pollution can move from the surface of the land into drinking water sources, based on natural geology and the way wells are constructed.

Find your source water assessment at [Source Water Assessments](https://www.health.state.mn.us/communities/environment/water/swp/swa) (<https://www.health.state.mn.us/communities/environment/water/swp/swa>) or call 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Lead in Drinking Water

You may be in contact with lead through paint, water, dust, soil, food, hobbies, or your job. Coming in contact with lead can cause serious health problems for everyone. There is no safe level of lead. Babies, children under six years, and pregnant women are at the highest risk.

Lead is rarely in a drinking water source, but it can get in your drinking water as it passes through lead service lines and your household plumbing system. Lake City provides high quality drinking water, but it cannot control the plumbing materials used in private buildings.

Read below to learn how you can protect yourself from lead in drinking water.

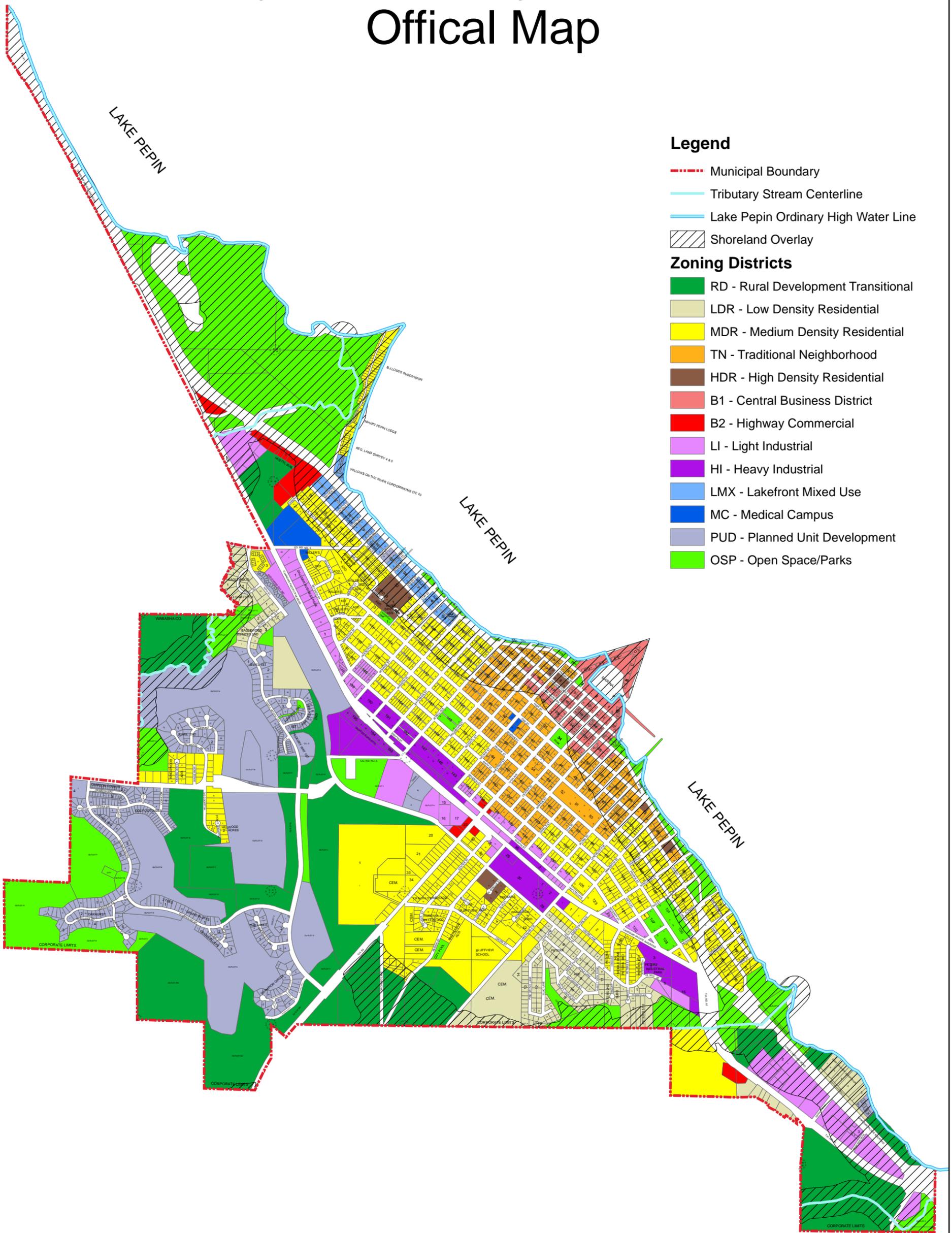
1. **Let the water run** for 30-60 seconds before using it for drinking or cooking if the water has not been turned on in over six hours. If you have a lead service line, you may need to let the water run longer. A service line is the underground pipe that brings water from the main water pipe under the street to your home.
 - You can find out if you have a lead service line by contacting your public water system, or you can check by following the steps at: <https://www.mprnews.org/story/2016/06/24/npr-find-lead-pipes-in-your-home>
 - The only way to know if lead has been reduced by letting it run is to check with a test. If letting the water run does not reduce lead, consider other options to reduce your exposure.
2. **Use cold water** for drinking, making food, and making baby formula. Hot water releases more lead from pipes than cold water.
3. **Test your water.** In most cases, letting the water run and using cold water for drinking and cooking should keep lead levels low in your drinking water. If you are still concerned about lead, arrange with a laboratory to test your tap water. Testing your water is important if young children or pregnant women drink your tap water.
 - Contact a Minnesota Department of Health accredited laboratory to get a sample container and instructions on how to submit a sample:
[Environmental Laboratory Accreditation Program \(https://eldo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam\)](https://eldo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam)
 The Minnesota Department of Health can help you understand your test results.
4. **Treat your water** if a test shows your water has high levels of lead after you let the water run.
 - Read about water treatment units:
[Point-of-Use Water Treatment Units for Lead Reduction \(https://www.health.state.mn.us/communities/environment/water/factsheet/poulead.html\)](https://www.health.state.mn.us/communities/environment/water/factsheet/poulead.html)

Learn more:

- Visit [Lead in Drinking Water \(https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html\)](https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html)
- Visit [Basic Information about Lead in Drinking Water \(http://www.epa.gov/safewater/lead\)](http://www.epa.gov/safewater/lead)
- Call the EPA Safe Drinking Water Hotline at 1-800-426-4791. To learn about how to reduce your contact with lead from sources other than your drinking water, visit [Lead Poisoning Prevention: Common Sources \(https://www.health.state.mn.us/communities/environment/lead/sources.html\)](https://www.health.state.mn.us/communities/environment/lead/sources.html).

APPENDIX C
LAND ZONING MAPS

City of Lake City Minnesota Official Map

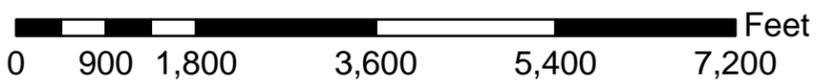


Legend

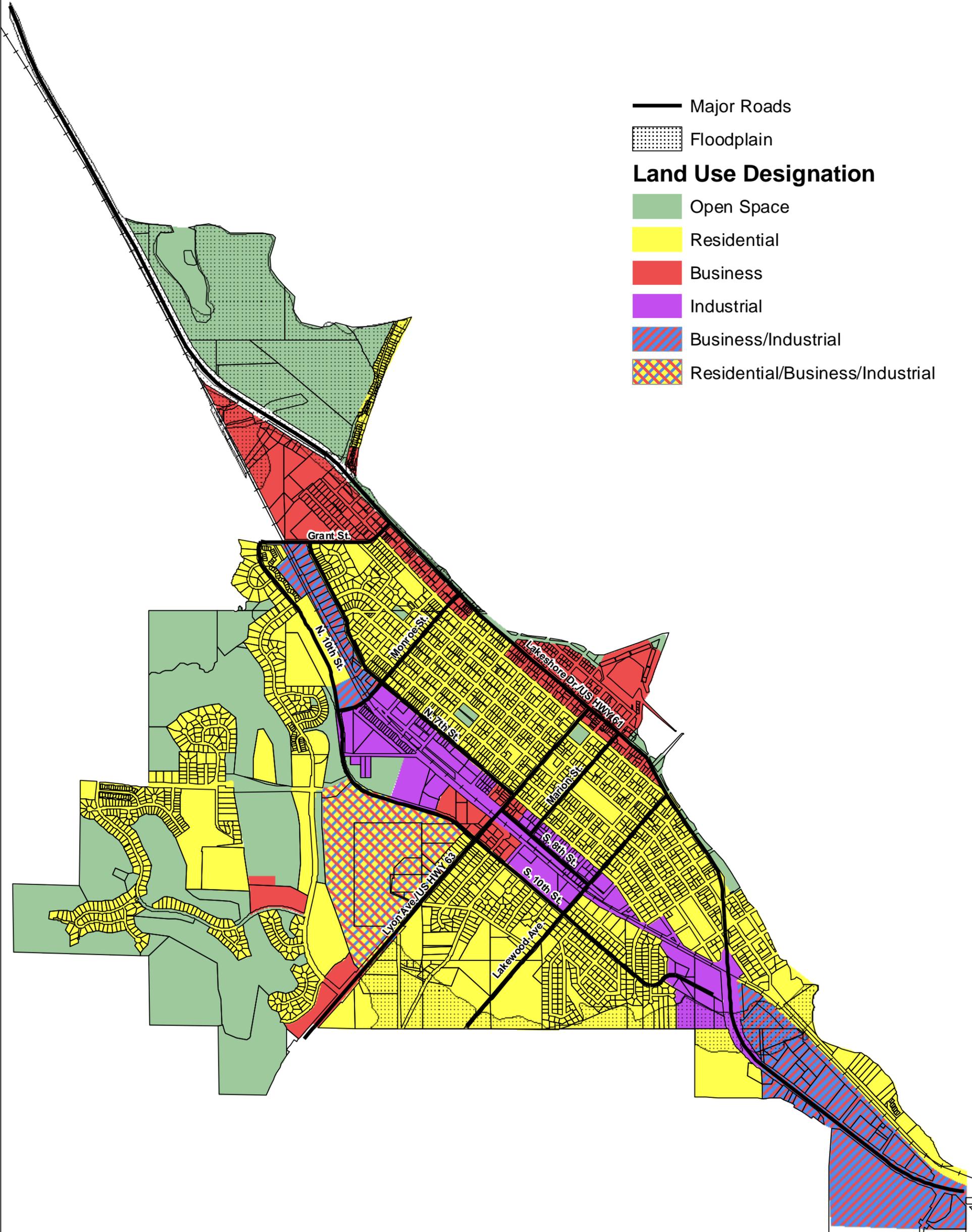
- - - - Municipal Boundary
 - Tributary Stream Centerline
 - Lake Pepin Ordinary High Water Line
 - Shoreland Overlay
- ### Zoning Districts
- RD - Rural Development Transitional
 - LDR - Low Density Residential
 - MDR - Medium Density Residential
 - TN - Traditional Neighborhood
 - HDR - High Density Residential
 - B1 - Central Business District
 - B2 - Highway Commercial
 - LI - Light Industrial
 - HI - Heavy Industrial
 - LMX - Lakefront Mixed Use
 - MC - Medical Campus
 - PUD - Planned Unit Development
 - OSP - Open Space/Parks



Created: February 23, 2012
By: City of Lake City



Comprehensive Plan Future Land Use Map

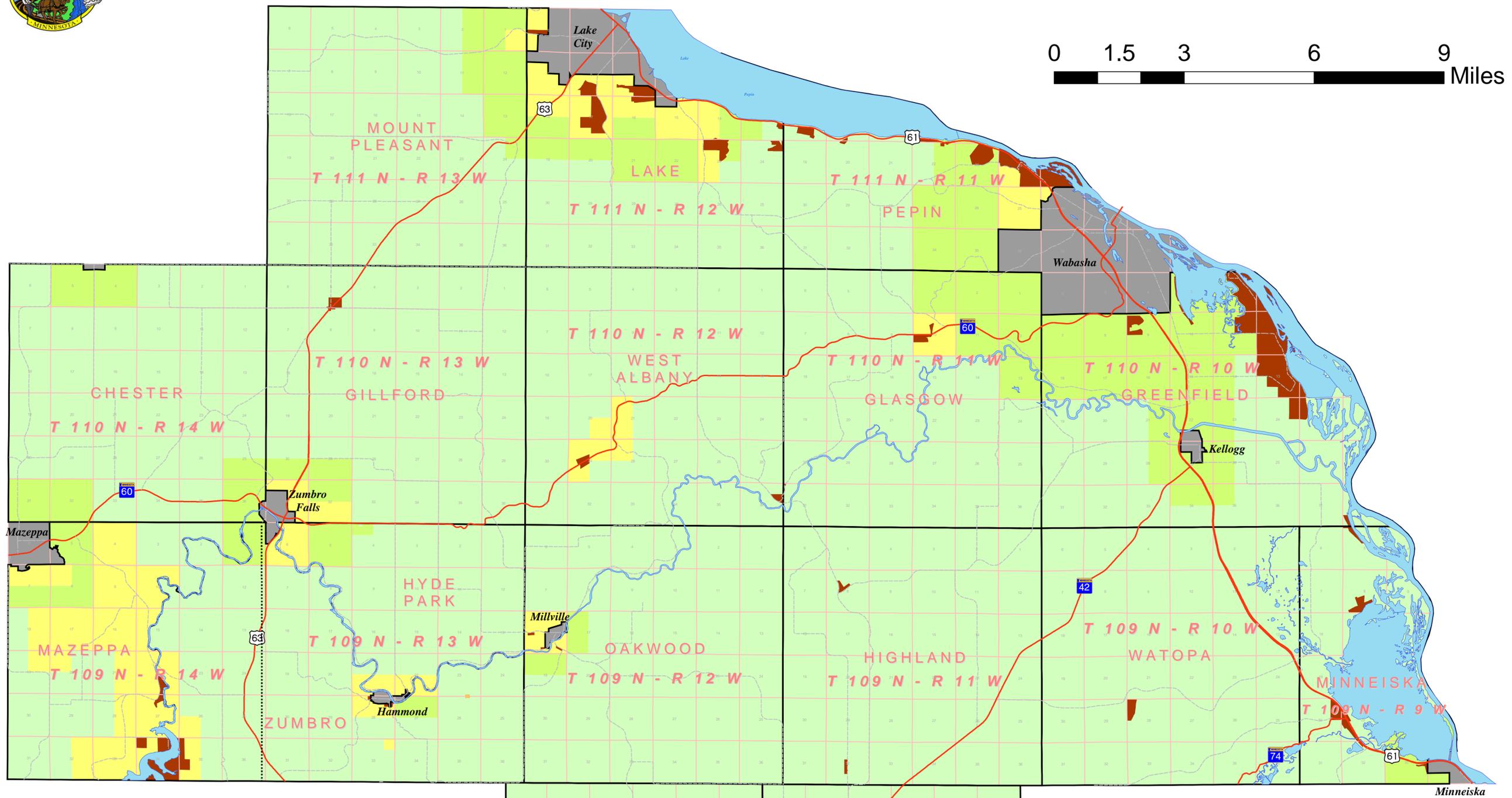
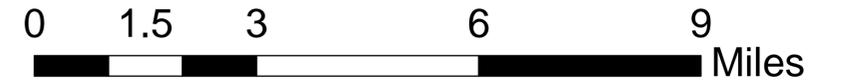


- Major Roads
- ▤ Floodplain
- Land Use Designation**
- Open Space
- Residential
- Business
- Industrial
- ▨ Business/Industrial
- ▩ Residential/Business/Industrial

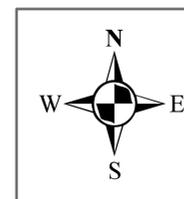
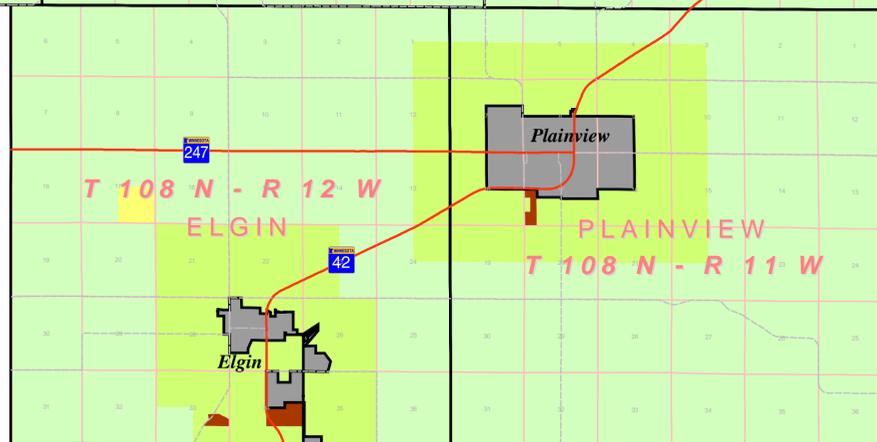
This map represents future potential land uses as described in the Lake City Comprehensive Plan. For current land use regulations, please contact the Lake City Planning & Community Development Department for existing zoning classifications.



Wabasha County Zoning Districts



Zoning Districts		Roads	
	A-1		US/ State Hwy
	A-2		CSAH/ Co Rd
	A-3	Townships	
	R-1		Township Boundaries
	Municipal Zoning	Water Features	
			Lake/ River



Map created by Wabasha County GIS using data obtained from Wabasha County Environmental Services. This data is believed to be accurate, but Wabasha County is not responsible for any errors or omissions. Please contact Wabasha County GIS with any questions at 651-565-5164.

5/3/2012

APPENDIX D

INNER WELLHEAD MANAGEMENT ZONE SURVEYS

**INNER WELLHEAD MANAGEMENT ZONE (IWMZ) -
 POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT**

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1790004	COMMUNITY
NAME	Lake City	
ADDRESS	Lake City Water Superintendent, 205 West Center, Lake City, MN 55041	

FACILITY (WELL) INFORMATION

NAME	Well #1	IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE? <input type="checkbox"/> YES (Please attach a copy) <input type="checkbox"/> NO <input type="checkbox"/> UNDETERMINED
FACILITY ID	S01	
UNIQUE WELL NO.	226873	
COUNTY	Wabasha	

PWS ID / FACILITY ID	1790004 S01	UNIQUE WELL NO.	226873
-----------------------------	----------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

Agricultural Related

*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well ^P (Class V well - illegal ^Q)	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		

SSTS Related

AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well) ²	50/300/150 ⁴	50/300/150 ⁴	100/600/300 ⁴	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		

PWS ID / FACILITY ID	1790004 S01	UNIQUE WELL NO.	226873
-----------------------------	-------------	------------------------	--------

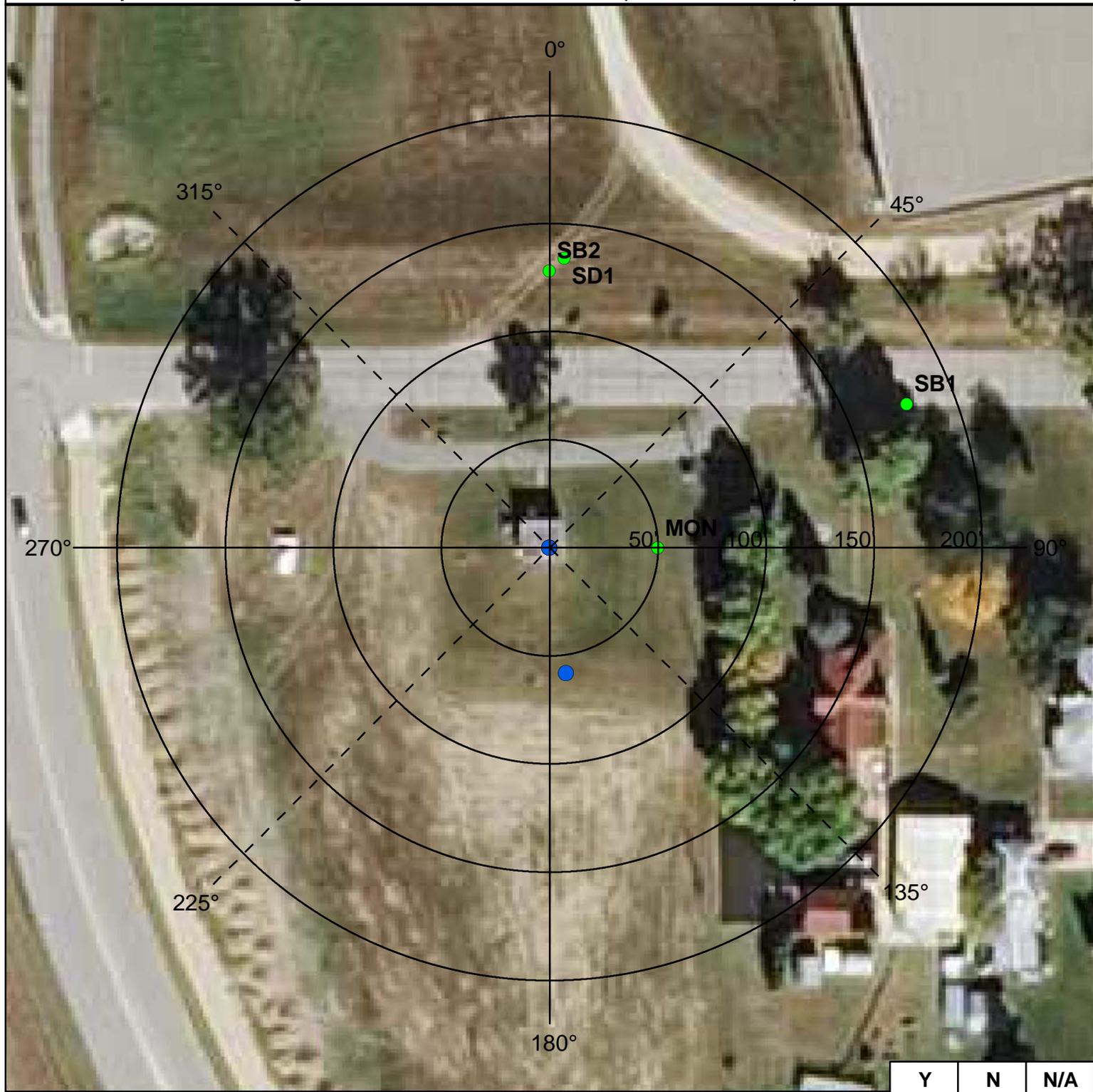
PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal) ²	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal) ²	illegal	illegal		N		
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	178	N
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	128	N
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	134	N
SWI	Storm water drainage well ² (Class V well - illegal ³)	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		Y	50	N
WEL	Operating well	record dist.	record dist.		Y	59	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		

PWS ID / FACILITY ID 1790004 S01

UNIQUE WELL NO. 226873

SETBACK DISTANCES All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR Hoerr, Robyn DATE 1 - 14 - 2015

PWS ID / FACILITY ID	1790004 S01	UNIQUE WELL NO.	226873
-----------------------------	-------------	------------------------	--------

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Any sewer lines that are observed to be leaking, cracked, or deteriorated, should be replaced.		
Best management practices should be employed for outdoor chemical use, to prevent stormwater from moving chemical contaminants to surface waters or where wells could be impacted.		
The well on your property that does not provide drinking water to the public should be properly managed. Management practices include: locating potential sources of contamination away from the well, sealing unused wells, maintaining the well casing and cap in good repair, and testing the water periodically. Additional information can be found at www.health.state.mn.us/divs/eh/wells .		
The location of the gravel pocket/french drain should be verified and documented. Knowing the location of the gravel pocket/french drain can help with assessing the drainline for deterioration and/or leakage and determining if it meets the minimum isolation distance specified in Minn. Rules, 4725.4450.		

COMMENTS
Floor drain in wells house that drains to gravel pocket. Location of gravel pocket thought to be to west of well house.

For further information, please contact:

**Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975**

**Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000**

**INNER WELLHEAD MANAGEMENT ZONE (IWMZ) -
 POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT**

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1790004	COMMUNITY
NAME	Lake City	
ADDRESS	Lake City Water Superintendent, 205 West Center, Lake City, MN 55041	

FACILITY (WELL) INFORMATION

NAME	Well #2	IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE? <input type="checkbox"/> YES (Please attach a copy) <input type="checkbox"/> NO <input type="checkbox"/> UNDETERMINED
FACILITY ID	S02	
UNIQUE WELL NO.	226872	
COUNTY	Wabasha	

PWS ID / FACILITY ID	1790004 S02	UNIQUE WELL NO.	226872
-----------------------------	----------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)			LOCATION		
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

Agricultural Related

*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well ^P (Class V well - illegal ^Q)	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		

SSTS Related

AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well) ²	50/300/150 ⁴	50/300/150 ⁴	100/600/300 ⁴	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		

PWS ID / FACILITY ID	1790004 S02	UNIQUE WELL NO.	226872
-----------------------------	-------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal) ²	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal) ²	illegal	illegal		N		
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	100	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	95	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	110	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	125	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	180	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	150	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	125	Y
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	85	N
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	109	N
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	90	Y
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	115	Y
SWI	Storm water drainage well ² (Class V well - illegal ³)	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		

PWS ID / FACILITY ID	1790004 S02	UNIQUE WELL NO.	226872
-----------------------------	-------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)			LOCATION		
		Minimum Distances		Sensitive Well ¹	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

* New potential contaminant source.

¹ A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

² These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

³ These sources are classified as illegal by Minnesota Rules, Chapter 4725.

⁴ Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

⁵ A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID

1790004 S02

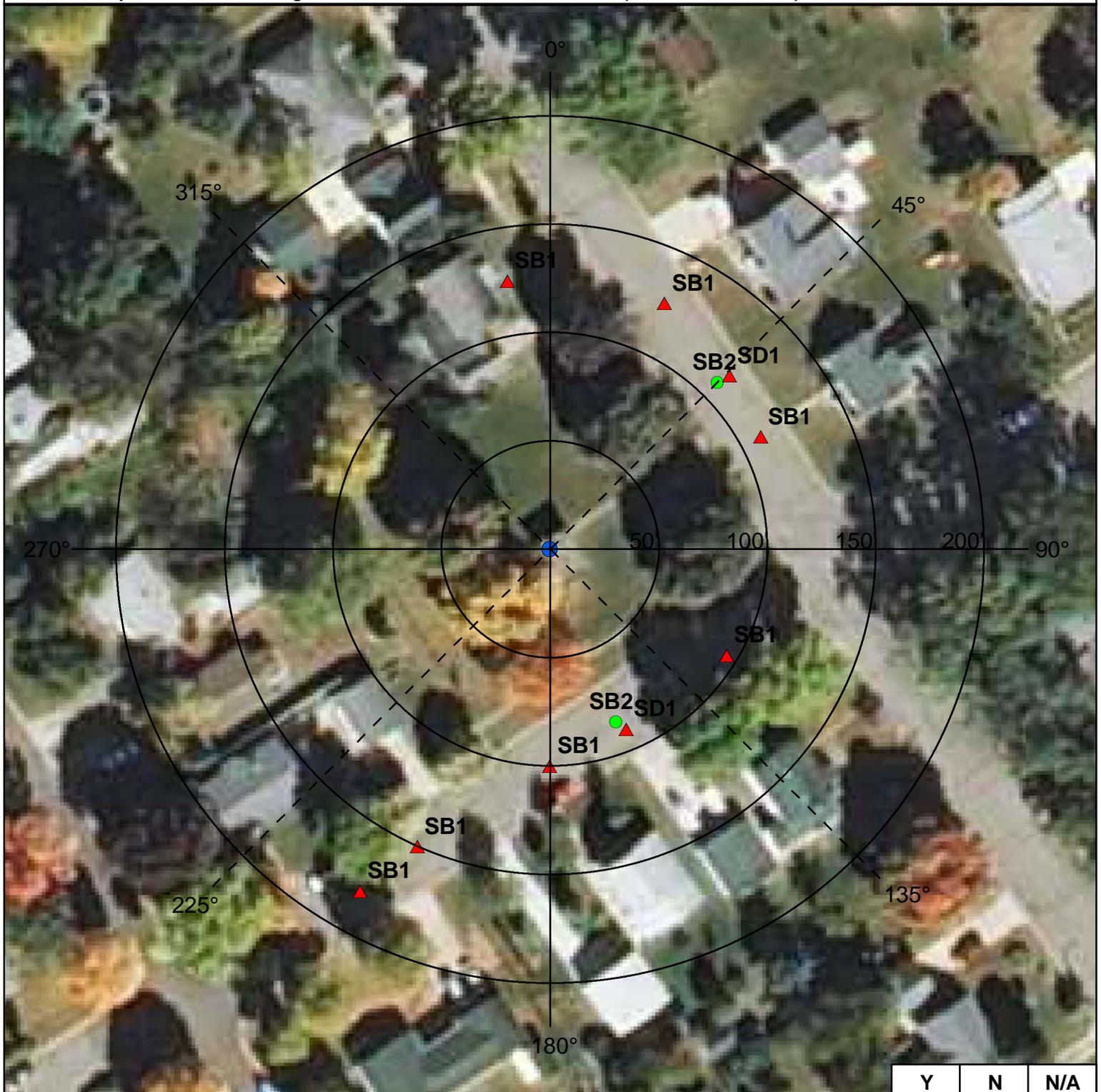
UNIQUE WELL NO.

226872

SETBACK DISTANCES

All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Hoerr, Robyn	DATE	1 - 14 - 2015
-----------	--------------	------	---------------

PWS ID / FACILITY ID	1790004 S02	UNIQUE WELL NO.	226872
-----------------------------	-------------	------------------------	--------

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Any sewer lines that are observed to be leaking, cracked, or deteriorated, should be replaced.		
Best management practices should be employed for outdoor chemical use, to prevent stormwater from moving chemical contaminants to surface waters or where wells could be impacted.		
The location of the gravel pocket/french drain should be verified and documented. Knowing the location of the gravel pocket/french drain can help with assessing the drainline for deterioration and/or leakage and determining if it meets the minimum isolation distance specified in Minn. Rules, 4725.4450.		

COMMENTS

Floor drain in well house drains to gravel pocket. Location unknown.

For further information, please contact:

**Minnesota Department of Health
 Drinking Water Protection Section
 Source Water Protection Unit
 P.O. Box 64975
 St. Paul, Minnesota 55164-0975**

**Section Receptionist: 651-201-4700
 Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000**

**INNER WELLHEAD MANAGEMENT ZONE (IWMZ) -
 POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT**

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1790004	COMMUNITY
NAME	Lake City	
ADDRESS	Lake City Water Superintendent, 205 West Center, Lake City, MN 55041	

FACILITY (WELL) INFORMATION

NAME	Well #3	IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE? <input type="checkbox"/> YES (Please attach a copy) <input type="checkbox"/> NO <input type="checkbox"/> UNDETERMINED
FACILITY ID	S03	
UNIQUE WELL NO.	241415	
COUNTY	Wabasha	

PWS ID / FACILITY ID	1790004 S03	UNIQUE WELL NO.	241415
-----------------------------	----------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

Agricultural Related

*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well ^P (Class V well - illegal ³)	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		

SSTS Related

AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well) ²	50/300/150 ⁴	50/300/150 ⁴	100/600/300 ⁴	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		

PWS ID / FACILITY ID	1790004 S03	UNIQUE WELL NO.	241415
-----------------------------	-------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal) ²	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal) ²	illegal	illegal		N		
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	150	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	200	Y
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	120	N
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	85	N
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		

Land Application

SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
-----	--	----	----	-----	---	--	--

Solid Waste Related

COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		

Storm Water Related

SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	102	N
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	190	N
SWI	Storm water drainage well ² (Class V well - illegal ³)	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		

Wells and Borings

*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		Y	25	Y
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		Y	82	

General

*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		

PWS ID / FACILITY ID	1790004 S03	UNIQUE WELL NO.	241415
-----------------------------	-------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)			LOCATION		
		Minimum Distances		Sensitive Well ¹	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

* New potential contaminant source.

¹ A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

² These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

³ These sources are classified as illegal by Minnesota Rules, Chapter 4725.

⁴ Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

⁵ A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID

1790004 S03

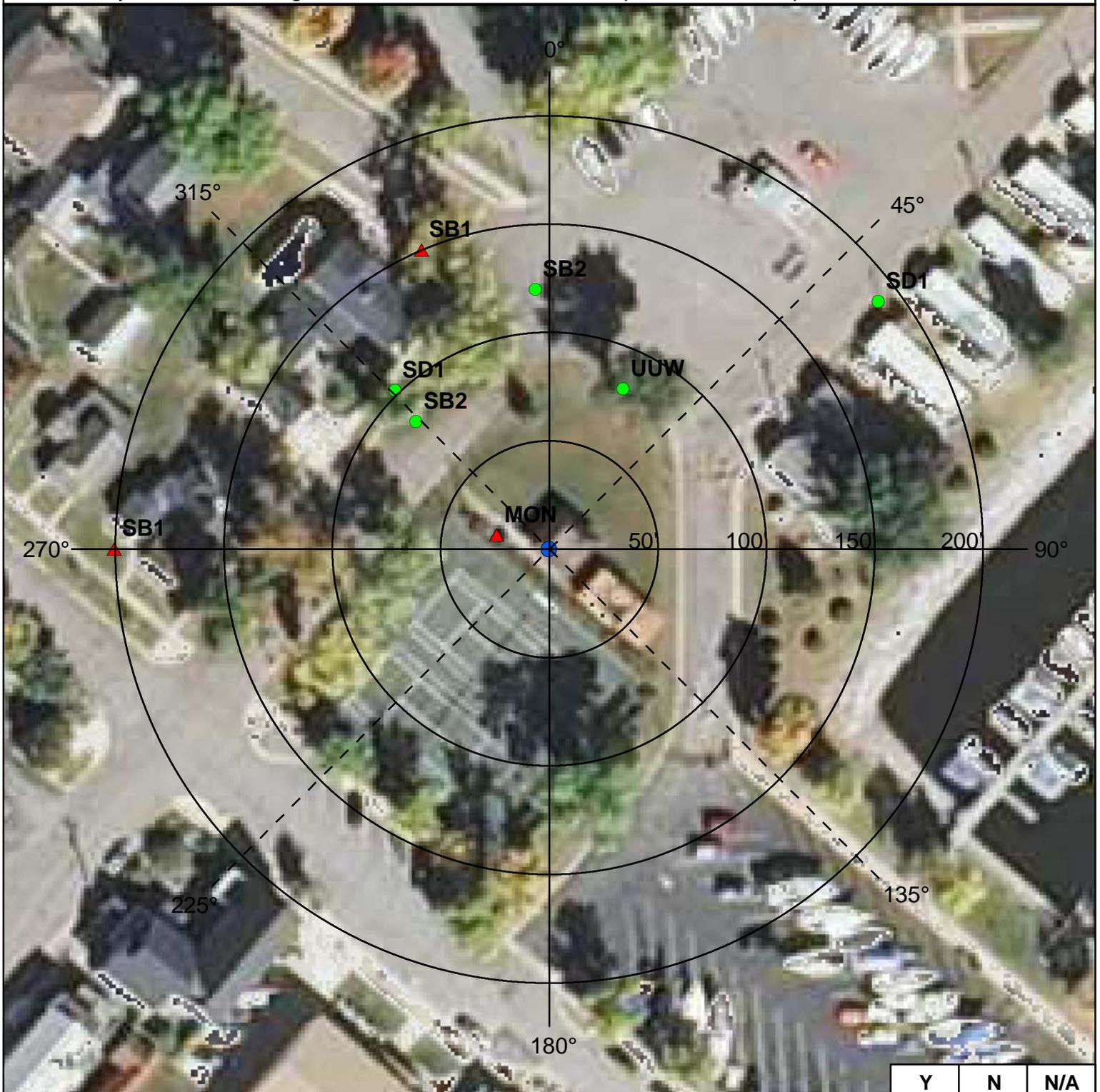
UNIQUE WELL NO.

241415

SETBACK DISTANCES

All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Hoerr, Robyn	DATE	1 - 14 - 2015
-----------	--------------	------	---------------

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Any sewer lines that are observed to be leaking, cracked, or deteriorated, should be replaced.		
Best management practices should be employed for outdoor chemical use, to prevent stormwater from moving chemical contaminants to surface waters or where wells could be impacted.		
The well on your property that does not provide drinking water to the public should be properly managed. Management practices include: locating potential sources of contamination away from the well, sealing unused wells, maintaining the well casing and cap in good repair, and testing the water periodically. Additional information can be found at www.health.state.mn.us/divs/eh/wells .		

COMMENTS
<p>Floor drain in well house drains to solid tank (in case of spill).</p>

For further information, please contact:

**Minnesota Department of Health
 Drinking Water Protection Section
 Source Water Protection Unit
 P.O. Box 64975
 St. Paul, Minnesota 55164-0975**

**Section Receptionist: 651-201-4700
 Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000**

**INNER WELLHEAD MANAGEMENT ZONE (IWMZ) -
 POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT**

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1790004	COMMUNITY
NAME	Lake City	
ADDRESS	Lake City Water Superintendent, 205 West Center, Lake City, MN 55041	

FACILITY (WELL) INFORMATION

NAME	Well #4	IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE? <input type="checkbox"/> YES (Please attach a copy) <input type="checkbox"/> NO <input type="checkbox"/> UNDETERMINED
FACILITY ID	S04	
UNIQUE WELL NO.	191592	
COUNTY	Wabasha	

PWS ID / FACILITY ID	1790004 S04	UNIQUE WELL NO.	191592
-----------------------------	----------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)			LOCATION		
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

Agricultural Related

*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well ^P (Class V well - illegal ^Q)	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		

SSTS Related

AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well) ²	50/300/150 ⁴	50/300/150 ⁴	100/600/300 ⁴	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		

PWS ID / FACILITY ID	1790004 S04	UNIQUE WELL NO.	191592
-----------------------------	-------------	------------------------	--------

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal) ²	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal) ²	illegal	illegal		N		
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	96	N
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	95	N
SWI	Storm water drainage well ² (Class V well - illegal ³)	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		

PWS ID / FACILITY ID

1790004 S04

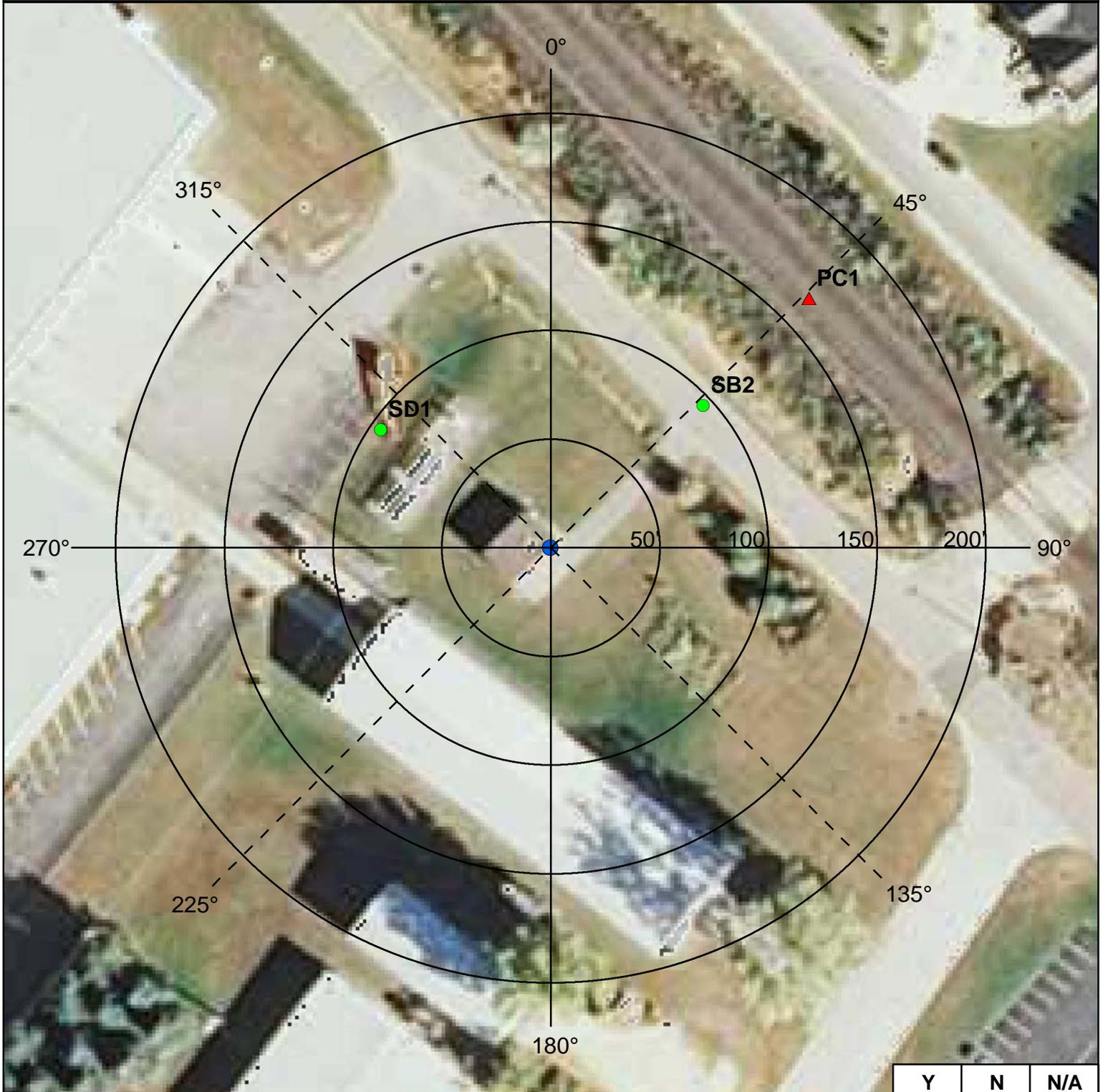
UNIQUE WELL NO.

191592

SETBACK DISTANCES

All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



Y	N	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Were the isolation distances maintained for the new sources of contamination?

Is the system monitoring existing nonconforming sources of contamination?

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR

Hoerr, Robyn

DATE

1 - 14 - 2015

PWS ID / FACILITY ID	1790004 S04	UNIQUE WELL NO.	191592
----------------------	-------------	-----------------	--------

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Any sewer lines that are observed to be leaking, cracked, or deteriorated, should be replaced.		
An emergency response plan should be adopted for hazardous material spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		
Best management practices should be employed for outdoor chemical use, to prevent stormwater from moving chemical contaminants to surface waters or where wells could be impacted.		

COMMENTS
Railroad transportation line is to the NW of the well (indicated by code PC1), and a measure is included in this survey directing the PWS to coordinate emergency spill reponse with the appropriate agencies.

For further information, please contact:

**Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975**

**Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000**

APPENDIX E

**NOTICE OF APPROVAL OF
WATER SUPPLY PLAN**

(NOT INCLUDED IN THIS DRAFT)

APPENDIX F

CORRESPONDENCE



April 2, 2019

Mr. Scott Jensen, Public Works Director
City of Lake City
205 West Center Street
Lake City, Minnesota 55041

Subject: Scoping 2 Decision Notice and Meeting Summary – City of Lake City – PWSID 1790004

Dear Mr. Jensen:

This letter provides notice of the results of a scoping meeting held with you, Robyn Hoerr (Minnesota Rural Water Association), Mark Janovec (Stantec) and me on March 14, 2019, at the Lake City city office regarding wellhead protection (WHP) planning. During the meeting, we discussed the data elements that must be compiled and assessed to prepare the part of the WHP plan related to the management of potential contaminants in the approved drinking water supply management area. The enclosed Scoping 2 Decision Notice lists the data elements discussed at the meeting. We also discussed a summary of planning issues and recommendations that were identified during the Part 1 WHP Plan development process which should be considered for inclusion in your Part 2 WHP Plan.

The city of Lake City has met the requirements to distribute copies of the first part of the WHP plan to local units of government and hold an informational meeting for the public. The city of Lake City will have until February 28, 2020, to complete its WHP plan.

MDH understands a consultant will be working with you to develop a draft of the remainder of the WHP plan. I will be contacting you to review the progress of the development of Part 2 of your plan. Upon request, the Technical Assistance Planner can provide a glossary of terminology, identification of information sources for the required Data Elements, and other technical assistance documents. If you have any questions regarding the enclosed notice, contact me by email at jennifer.ronnenberg@state.mn.us or by phone at 507-206-2734.

Sincerely,

A handwritten signature in black ink that reads 'Jennifer Ronnenberg'.

Jennifer Ronnenberg, Principal Planner
Source Water Protection
18 Wood Lake Drive Southeast
Rochester, Minnesota 55904-5506

JR:ds-b

Enclosures

cc: Paul Halvorson, MDH Engineer, Metro District Office
Luke Stuewe, Minnesota Department of Agriculture
Robyn Hoerr, Minnesota Rural Water Association
Mark Janovec, Stantec Consulting Services

SCOPING 2 DECISION NOTICE

Vulnerable DWSMA and SWCA

Remainder of the Wellhead Protection Plan

Name of Public Water Supply:		Date:
PWS City of Lake City	PWSID: 1790004	April 2, 2019
Name of the Wellhead Protection Manager:		
Mr. Scott Jensen, Public Works Director		
Address:	City:	Zip:
205 West Center Street	Lake City	55041
Unique Well Numbers:		Phone:
226873 (Well #1), 226872 (Well #2), 241415 (Well #3), 191592 (Well #4)		651-345-6850

Instructions for Completing the Scoping 2 Form

N	R	S	N = Not required. If this box is checked, this data element is NOT necessary for your wellhead protection plan because it is not needed or it has been included in the first scoping decision notice. Please go to the next data element.
X			

N	R	S	R = Required for the remainder of the plan. If this box is checked, this data MUST be used for the "remainder of the plan."
	X		

N	R	S	S = Submit to MDH. If this box is checked, this data element MUST be included in your wellhead protection plan and submitted to MDH. If there is NO check mark in the "S" box but there is an "X" in the "R" box, this data element MUST be included in your plan, but should NOT be submitted to MDH. This box will only be checked if MDH does not have access to this data element. This will help to reduce the cost by reducing the amount of paper and time to reproduce the data element.
		X	

Note: Any data elements required in the first scoping decision notice must also be used to complete the remainder of the wellhead protection plan.

DATA ELEMENTS ABOUT THE PHYSICAL ENVIRONMENT

PRECIPITATION			
N	R	S	An existing map or list of local precipitation gauging stations.
	X	X	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing table showing the average monthly and annual precipitation in inches for the preceding five years.
	X	X	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
GEOLOGY			
N	R	S	An existing geologic map and a description of the geology, including aquifers, confining layers, recharge areas, discharge areas, sensitive areas as defined in Minnesota Statutes, section 103H.005, subdivision 13, and groundwater flow characteristics.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.			
N	R	S	Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.			
N	R	S	Existing borehole geophysical records from wells, borings, and exploration test holes.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect the geology of the areas.			
N	R	S	Existing surface geophysical studies.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect the geology of the areas.			
SOILS			
N	R	S	Existing maps of the soils and a description of soil infiltration characteristics.
	X	X	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	A description or an existing map of known eroding lands that are causing sedimentation problems.
	X	X	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

WATER RESOURCES

N	R	S	An existing map of the boundaries and flow directions of major watershed units and minor watershed units.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing map and a list of public waters as defined in Minnesota Statutes, section 103G.005, subdivision 15, and public drainage ditches.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	The shoreland classifications of the public waters listed under subitem (2), pursuant to part 6120.3000 and Minnesota Statutes, sections 103F.201 to 103F.221.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing map of wetlands regulated under Chapter 8420 and Minnesota Statutes, section 103G.221 to 103G.2373.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing map showing those areas delineated as floodplain by existing local ordinances.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

DATA ELEMENTS ABOUT THE LAND USE

LAND USE			
N	R	S	An existing map of parcel boundaries.
	X	X	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing map of political boundaries.
	X	X	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing map of public land surveys including township, range, and section.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

Land Use: Ground Water and Surface Water Contribution Vulnerability

N	R	S	A map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources.
	X	X	
<p>Technical Assistance Comments: The inventory, mapping, and management of land uses and potential sources of contamination for all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements, as follows:</p> <p><u>Groundwater and Surface Water Contribution Vulnerability</u></p> <p>1) All potential contaminant sources as listed below. DWSMA Vulnerability Figure 5 for the city of Lake City is attached for reference to identify areas of vulnerability and the Surface Water Contribution Area.</p> <p>2) A land use/land cover map and table.</p> <p>3) An inventory of the Inner Wellhead Management Zone(s) (IWMZ).</p> <p><input type="checkbox"/> <u>Areas with Combination High Vulnerability Groundwater and Highly Vulnerable SWCA</u></p> <p>1) All potential contaminant sources as listed on the attachment: Potential Contaminant Source Inventory Requirements for Highly and Very Highly Vulnerable DWSMA.</p> <p>As a starting point, MDH will provide a land cover map and table from federal data bases. This data set must be used unless an alternative electronic data set that is more current and detailed is available. Management strategies must be developed for all land uses and potential sources of contamination.</p>			
N	R	S	An existing comprehensive land-use map..
	X	X	
<p>Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			
N	R	S	An existing zoning map.
	X	X	
<p>Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			

PUBLIC UTILITY SERVICES

N	R	S	An existing map of transportation routes or corridors.
	X		
<p>Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			
N	R	S	An existing map of storm sewers, sanitary sewers, and public water supply systems.
	X	X	
<p>Technical Assistance Comments: It is not necessary to include a map of your public water supply system in your plan if you feel it would pose a threat to the security of your system. An existing map of the storm sewers and sanitary sewers in the Drinking Water Supply Management Area(s) must be included in the wellhead protection plan and must also be submitted to MDH as part of the approval.</p>			

N	R	S	An existing map of the gas and oil pipeline used by gas and oil suppliers.
	X	X	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing map or list of public drainage systems.
	X	X	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing record of construction, maintenance, and use of the public water supply well and other wells within the drinking water supply management area.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

DATA ELEMENTS ABOUT WATER QUANTITY

SURFACE WATER QUANTITY			
N	R	S	An existing description of high, mean, and low flows on streams.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing list of lakes where the state has established ordinary high water marks.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing list of permitted withdrawals from lakes and streams, including source, use, and amounts withdrawn.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing list of lakes and streams for which state protected levels or flows have been established.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing description of known water-use conflicts, including those caused by groundwater pumping.
	X	X	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

GROUNDWATER QUANTITY

N	R	S	An existing list of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing description of known well interference problems and water-use conflicts.
	X	X	

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing list of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

DATA ELEMENTS ABOUT WATER QUALITY

SURFACE WATER QUALITY

N	R	S	An existing map or list of the state water quality management classification for each stream and lake.
	X		

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing summary of lake and stream water quality monitoring data, including: 1. bacteriological contamination indicators; 4. sedimentation; 2. inorganic chemicals; 5. dissolved oxygen; and 3. organic chemicals; 6. excessive growth or deficiency of aquatic plants.
	X		

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

GROUNDWATER QUALITY

N	R	S	An existing summary of water quality data, including: 1. bacteriological contamination indicators; 2. inorganic chemicals; and 3. organic chemicals.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing list of water chemistry and isotopic data from wells, springs, or other groundwater sampling points.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing report of groundwater tracer studies.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing site study and well water analysis of known areas of groundwater contamination.
	X		

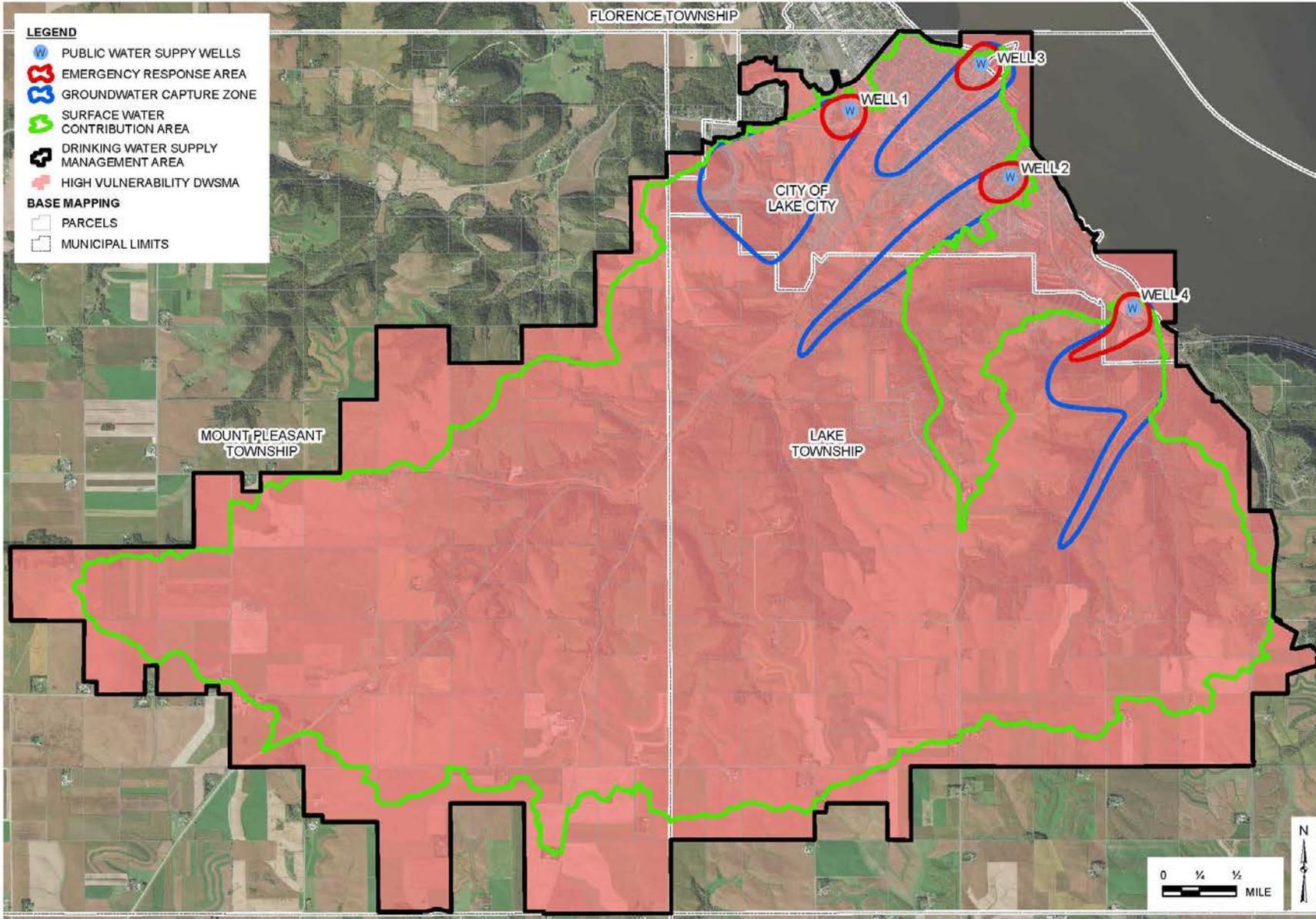
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.

N	R	S	An existing property audit identifying contamination.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	An existing report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases.
	X		

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.



City of Lake City Scoping 2 Meeting
Wellhead Protection (WHP) Planning Issues Summary

NOTE: This document is intended to be a summary of issues identified to date and is **not intended to replace the required data elements identified in the Scoping 2 Decision Notice** nor is it intended to be an exhaustive list of all potential drinking water issues.

Drinking Water Protection Issues Identified to Date:

- Groundwater contribution areas are a mix of high and low vulnerability, but since the surface water contribution area (highly vulnerable) covers the entire wellhead protection area, we are treating the whole drinking water supply management area as highly vulnerable.
- All four wells draw from the geologically unprotected Quaternary Water Table Aquifer, with Well #3 possibly receiving some recharge from Lake Pepin. This possible connection should be further investigated.
- There is a mix of urban and rural land uses between the four wells, making the potential contaminant source inventory especially important.
- Chemical spills, leaks or other similar contamination risks are a primary concern. Travel corridors, such as major roads or rail lines where hazardous materials are transported should be closely reviewed during the potential contaminant source inventory.
- Wells, especially unused or abandoned wells, are also a primary concern. Old municipal wells may still exist that need to be sealed. Other high-capacity wells, such as creamery, railroad and brewery wells not in use should be targeted for location verification and possible sealing using MDH grants.

Water Quality Detections and Implications:

- Tritium results from the wells suggest that younger water from the surface may be mixing within the aquifer. Water age dating techniques are suggested (see recommendations below).
- Nitrate concentrations in the wells typically range from 1.5 - 3.0 ppm, suggesting that there may be some impact from the surface. More sampling and study is needed to fully characterize the surface-groundwater connection and mixing influence.
- Use water quality sampling as a means to establish baseline conditions that can be monitored for changes over time.
- There are new virus study results in the area that may be a helpful source of information. MDH can supply information relevant to your wellhead protection plan.

Old Municipal Well Information:

- The Minnesota Department of Health has compiled historical information for use in the planning process. A copy was given to the city at the Scoping 2 meeting.

Sanborn Maps:

- Sanborn Maps are available for this area.
- Sanborn Maps are not available for this area.

Recommended WHP Measures: From Part 1, page 11:

Collection of additional data will help future amendments of the Wellhead Protection Plan to more accurately model the capture zones and assess the vulnerability of the wells and the aquifer.

It is recommended that water quality and age dating testing be conducted at all four wells to assess:

1. Tritium Levels, which indicate the approximate age of the water in the aquifer.
2. Isotopes which indicate potential connections to surface waters.
3. General water quality parameters which may also help assess well and aquifer vulnerability.

During the amendment of the Part 2 Wellhead Protection Plan, these measures should be written into the plan and an approximate date scheduled for undertaking the sampling. MDH will generally assist and pay for most (if not all) of the recommended sampling. Sampling should be coordinated with MDH hydrogeologists to determine specific parameters that are suitable for testing.

From MDH Source Water Protection Hydrology staff:

Investigate the option of conducting a detailed age-dating study on the city wells using the state contract for SF6 and CFC analysis. If successful, the results might be used to better constrain the age of water recharging the city's aquifer which could impact decisions on DWSMA management as well as WHPA refinement. Coordinate with MDH hydrologist regarding well(s) of interest and sampling requirements. The sampling process is not straightforward and may require removal of the well pump in addition to other criteria. If well pump removal is required, and is not already scheduled as part of some other maintenance schedule, the pump removal and replacement could be a grant-eligible activity. It is expected that any other sampling or analytical costs associated with such a study would be covered by MDH.

APPENDIX G

DOCUMENTATION OF PUBLIC HEARING

(NOT INCLUDED IN THIS DRAFT)

APPENDIX I

PART 1 WELLHEAD PROTECTION PLAN

(NOT INCLUDED IN THIS DRAFT)